2001

MINISTER'S GUIDELINES
FOR THE ASSESSMENT
OF
FARMLAND
LINEAR PROPERTY
MACHINERY AND EQUIPMENT
RAILWAY

Alberta
MUNICIPAL AFFAIRS

DUPLICATE

ALBERTA
MINISTER OF MUNICIPAL AFFAIRS

MLA, Fort McMurray

MINISTERIAL ORDER NO. L:171/01

I, Guy Boutilier, Minister of Municipal Affairs, pursuant to sections 3(2), 5(2), 6(2), and 7(2) of the Matters Relating to Assessment and Taxation Regulation (AR 289/99) make the following order:

> The 2001 Minister's Guidelines for the Assessment of Farmland, Linear Property, Machinery and Equipment, and Railway, as set out in the attached document, are established.

Dated at Edmonton, Alberta, this 10 day of Dec., 2001.

Guy Boutilier
Minister of Municipal Affairs

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103-03673/

Minister's Guidelines for Farmland, Linear Property, Machinery and Equipment and Railway Assessment

PART 1: GENERAL

1.001 APPLICATION

These Guidelines are comprised of the following:

(a) *2001 Alberta Farmland Assessment Procedures*

(b) *2001 Alberta Linear Property Assessment Procedures*

(c) *2001 Alberta Machinery and Equipment Procedures*

(d) *2001 Alberta Railway Assessment Procedures*

(e) *2001 Alberta Farmland Assessment Manual* updated, in the case of land used for farming operations, attached as Appendix I

(f) *2001 Alberta Linear Property Assessment Manual*, in the case of linear property in a municipality, attached as Appendix II

(g) *2001 Alberta Machinery and Equipment Assessment Manual*, in the case of machinery and equipment in a municipality, attached as Appendix III

(h) *2001 Alberta Railway Assessment Manual*, in the case of railway property in a municipality, attached as Appendix IV

(i) *2001 Construction Cost Reporting Guide, attached as Appendix V.*

1.002 GENERAL DEFINITIONS

In these Guidelines,

(a) "Act" means the *Municipal Government Act* (SA 1994 cM-26.1)

(b) "assessment year" means the year prior to the taxation year

(c) "assessor" means:

(i) in respect of Linear Property, the person designated by the Minister to carry out the duties and responsibilities of an assessor under the Act, and

(ii) with respect to property other than Linear Property, the person appointed by the municipality to the position of designated officer to carry out the duties and responsibilities of an assessor under the Act,

and includes any person to whom those duties and responsibilities are delegated by the person referred to in subclause (i) or (ii).

(d) "regulation" means the *Matters Relating To Assessment and Taxation Regulation* (AR 289/99), as amended.

1.003 MINISTERIAL PRESCRIPTION

For the purposes of these Guidelines and section 2(b) of the Regulation, it is hereby prescribed that the cost of all computer software, including both basic software and applications software, intended for or used in connection with the monitoring, control or operation of any assessable property shall be included in the base cost of the property which is otherwise assessable.

PART 2: ASSESSMENT OF LAND USED FOR FARMING OPERATIONS

2.001 DEFINITIONS

In this Part,

(a) "agricultural use value" means the value of a parcel of land based exclusively on its use for farming operations;

(b) "assessment year modifier" means the factor which is applied to the value of land used for farming operations in order to determine its value in the assessment year;

(c) "farming operation" has the meaning given to it in the Act;

(d) "field" means a separately valued area within a parcel of land that is used for farming operations.

2.002 CALCULATION OF AGRICULTURAL USE VALUE

The agricultural use value of land used for farming operations shall be calculated by

(e) using the agricultural use value base rate table in Schedule A of the *2001 Alberta Farmland Assessment Manual* updated to establish the property's agricultural use value base rate;

(f) multiplying the agricultural use value base rate by the appropriate Assessment Year Modifier prescribed in Schedule B of the *2001 Alberta Farmland Assessment Manual* updated to determine the agricultural use value base rate per acre for the assessment year;

(g) multiplying the agricultural use value base rate per acre by a Final Rating Factor prescribed in Schedule C of the *2001 Alberta Farmland Assessment Manual* updated to determine the agricultural use value per acre for the field;

(h) multiplying the agricultural use value per acre for the field by the number of acres in each field to determine the agricultural use value of the field;

(i) adding together the agricultural use value for each field to determine the agricultural use value of the parcel;

(j) multiplying the agricultural use value of the parcel by the Farm Service Centre Rating factor prescribed in Schedule D of the *2001 Alberta Farmland Assessment Manual* updated.

PART 3: ASSESSMENT OF LINEAR PROPERTY IN A MUNICIPALITY

3.001 DEFINITIONS

In this Part,

(a) "assessment year modifier", means the factor which is applied to the base cost of linear property in order to adjust its base cost to the assessment year;

(b) "base cost" means the cost of an improvement, as prescribed in the *2001 Alberta Linear Property Assessment Manual*;

(c) "linear property" has the meaning given to it in the Act.

3.002 CALCULATION OF ASSESSMENT

The assessed value of linear property in a municipality, excluding wellsite land, shall be calculated by:

(a) establishing the base cost as prescribed in Schedule A of the *2001 Alberta Linear Property Assessment Manual*;

(b) multiplying the base cost by the appropriate Assessment Year Modifier prescribed in Schedule B of the *2001 Alberta Linear Property Assessment Manual*, to adjust the base cost to the assessment year;

(c) multiplying the amount determined in clause (b) by the appropriate depreciation factor prescribed in Schedule C of the *2001 Alberta Linear Property Assessment Manual*;

(d) if applicable, adjusting the amount determined in clause (c) for additional depreciation as prescribed in Schedule D of the *2001 Alberta Linear Property Assessment Manual.*

3.003 ASSESSED VALUE OF WELLSITE LAND

The assessed value of wellsite land shall be the amount prescribed in Schedule E of the *2001 Alberta Linear Property Assessment Manual.*

PART 4: ASSESSMENT OF MACHINERY AND EQUIPMENT IN A MUNICIPALITY

4.001 DEFINITIONS

In this Part,

(a) "assessment year modifier", means the factor which is applied to the base cost of machinery and equipment in order to adjust its base cost to the assessment year;

(b) "base cost" means the cost of an improvement, as prescribed in the *2001 Alberta Machinery and Equipment Assessment Manual;*

(c) "machinery and equipment" has the meaning given to it in the Act;

4.002 CALCULATION OF ASSESSMENT

The assessed value of machinery and equipment in a municipality shall be calculated by:

(a) establishing the base cost as prescribed in Schedule A of the *2001 Alberta Machinery and Equipment Assessment Manual*;

(b) multiplying the base cost by the appropriate Assessment Year Modifier prescribed in Schedule B of the *2001 Alberta Machinery and Equipment Assessment Manual* to adjust the base cost to the assessment year;

(c) multiplying the amount determined in clause (b) by the appropriate depreciation factor prescribed in Schedule C of the *2001 Alberta Machinery and Equipment Assessment Manual*;

(d) if applicable, adjusting the amount determined in clause (c) for additional depreciation as prescribed in Schedule D of the *2001 Alberta Machinery and Equipment Assessment Manual*.

4.003 ADDITIONAL ADJUSTMENT

In addition to the assessment calculation prescribed in section 4.002, the assessed value of machinery and equipment shall be further adjusted by a factor as prescribed in section 15(2)(b) of the *Regulation*.

PART 5: ASSESSMENT OF RAILWAY IN A MUNICIPALITY

5.001 DEFINITIONS

In this Part,

(a) "assessment year modifier", means the factor which is applied to the base cost of railway in order to adjust its base cost to the assessment year;

(b) "base cost" means the cost of railway, as prescribed in the *2001 Alberta Railway Assessment Manual*;

(c) "railway" has the meaning given to it in the Act.

5.002 CALCULATION OF ASSESSMENT

The assessed value of railway in a municipality shall be calculated by:

(a) establishing the base cost as prescribed in Schedule A of the *2001 Alberta Railway Assessment Manual*;

(b) multiplying the base cost by the appropriate Assessment Year Modifier prescribed in Schedule B of the *2001 Alberta Railway Assessment Manual* to adjust the base cost to the assessment year;

(c) multiplying the amount determined in clause (b) by the appropriate annual traffic factor prescribed in Schedule C of the *2001 Alberta Railway Assessment Manual.*

APPENDIX I

2001

ALBERTA

FARMLAND

ASSESSMENT MANUAL

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1.000 SCHEDULE A

1.001 AGRICULTURAL USE VALUE BASE RATE

	Dry Arable Land	Dry Pasture Land	Irrigated Arable Land	Woodlot*
Base Rate	350	350	450	135*

(1991 = 1.000)

***Note:** Subject to the amendment of the definition of farming operations in Regulation 289/99 of the Regulation.

2.000 SCHEDULE B

2.001 ASSESSMENT YEAR MODIFIER

Assessment Year	Dry Arable Modifier	Dry Pasture Modifier	Irrigated Arable Modifier	Woodlot*
2001	1.00	1.00	1.03	1.00*

***Note:** Subject to the amendment of the definition of farming operations in Regulation 289/99 of the Regulation.

3.000 SCHEDULE C

3.001 FINAL RATING FACTOR

The Final Rating Factors are contained in Schedule 7, of the 1984 *Alberta Assessment Manual* or *Schedule 8, The Woodlot Assessment Manual.*

4.000 SCHEDULE D

4.001 FARM SERVICE CENTRE RATING FACTOR

The Farm Service Centre Rating factors are contained in Schedule 7, section 7.060.500 of the *1984 Alberta Assessment Manual.*

APPENDIX II

2001

ALBERTA
LINEAR PROPERTY
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1.000 SCHEDULE A–BASE COST

1.001 LINEAR PROPERTY NOT DESCRIBED IN SCHEDULE A

The cost factors in Table 1, 2, 3 and 4 and the formula below shall be used to determine the base cost for linear property that is *not* described in Schedule A.

Formula: Base Cost = ac X cf

Where ac = the cost of linear property determined in accordance with Appendix V of the Minister's Guidelines.

cf = is the factor to convert the cost of the linear property (ac) from the year it was constructed in, to its cost in 1994.

1.001.100 TABLE 1–Cost Factors For Electric Power Systems

Year of Construction	Cost Factor	Year of Construction	Cost Factor	Year of Construction	Cost Factor
		1942	9.99	1972	3.53
1913	18.86	1943	9.77	1973	3.31
1914	19.51	1944	9.71	1974	2.93
1915	19.88	1945	9.63	1975	2.43
1916	18.35	1946	8.93	1976	2.14
1917	15.57	1947	8.30	1977	1.96
1918	13.56	1948	7.94	1978	1.78
1919	11.97	1949	7.95	1979	1.57
1920	9.80	1950	7.73	1980	1.40
1921	10.87	1951	6.94	1981	1.24
1922	11.78	1952	6.50	1982	1.16
1923	11.48	1953	6.12	1983	1.28
1924	11.61	1954	6.05	1984	1.34
1925	11.79	1955	6.00	1985	1.30
1926	11.89	1956	5.76	1986	1.30
1927	11.90	1957	5.56	1987	1.26
1928	11.62	1958	5.45	1988	1.24
1929	11.18	1959	5.39	1989	1.18
1930	11.57	1960	5.34	1990	1.13
1931	12.46	1961	5.30	1991	1.07
1932	13.43	1962	5.29	1992	1.05
1933	14.08	1963	5.26	1993	1.03
1934	13.87	1964	5.05	1994	1.00
1935	13.73	1965	4.86	1995	1.00
1936	13.34	1966	4.68	1996	1.00
1937	12.49	1967	4.29	1997	0.99
1938	12.72	1968	4.48	1998	0.98
1939	12.60	1969	4.39	1999	0.97
1940	11.96	1970	3.97	2000	0.97
1941	10.91	1971	3.82	2001	0.97

1.001.200 TABLE 2–Cost Factors For Telecommunication Systems*

Year of Construction	Cost Factor	Year of Construction	Cost Factor	Year of Construction	Cost Factor
		1942	9.99	1972	3.53
1913	18.86	1943	9.77	1973	3.31
1914	19.51	1944	9.71	1974	2.93
1915	19.88	1945	9.63	1975	2.43
1916	18.35	1946	8.93	1976	2.14
1917	15.57	1947	8.30	1977	1.96
1918	13.56	1948	7.94	1978	1.78
1919	11.97	1949	7.95	1979	1.57
1920	9.80	1950	7.73	1980	1.40
1921	10.87	1951	6.94	1981	1.24
1922	11.78	1952	6.50	1982	1.16
1923	11.48	1953	6.12	1983	1.15
1924	11.61	1954	6.05	1984	1.09
1925	11.79	1955	6.00	1985	1.05
1926	11.89	1956	5.76	1986	1.04
1927	11.90	1957	5.56	1987	1.00
1928	11.62	1958	5.45	1988	1.00
1929	11.18	1959	5.39	1989	0.98
1930	11.57	1960	5.34	1990	1.01
1931	12.46	1961	5.30	1991	0.97
1932	13.43	1962	5.29	1992	1.01
1933	14.08	1963	5.26	1993	0.98
1934	13.87	1964	5.05	1994	1.00
1935	13.73	1965	4.86	1995	1.00
1936	13.34	1966	4.68	1996	0.99
1937	12.49	1967	4.29	1997	0.99
1938	12.72	1968	4.48	1998	0.98
1939	12.60	1969	4.39	1999	1.03
1940	11.96	1970	3.97	2000	1.02
1941	10.91	1971	3.82	2001	1.01

*Does not include Cable Television Systems

1.001.300 TABLE 3–Cost Factors For Cable Television Systems

Year of Construction	Cost Factor	Year of Construction	Cost Factor	Year of Construction	Cost Factor
		1942	9.99	1972	3.53
1913	18.86	1943	9.77	1973	3.31
1914	19.51	1944	9.71	1974	2.93
1915	19.88	1945	9.63	1975	2.43
1916	18.35	1946	8.93	1976	2.14
1917	15.57	1947	8.30	1977	1.96
1918	13.56	1948	7.94	1978	1.78
1919	11.97	1949	7.95	1979	1.57
1920	9.80	1950	7.73	1980	1.40
1921	10.87	1951	6.94	1981	1.24
1922	11.78	1952	6.50	1982	1.16
1923	11.48	1953	6.12	1983	1.28
1924	11.61	1954	6.05	1984	1.34
1925	11.79	1955	6.00	1985	1.30
1926	11.89	1956	5.76	1986	1.30
1927	11.90	1957	5.56	1987	1.26
1928	11.62	1958	5.45	1988	1.24
1929	11.18	1959	5.39	1989	1.18
1930	11.57	1960	5.34	1990	1.13
1931	12.46	1961	5.30	1991	1.07
1932	13.43	1962	5.29	1992	1.05
1933	14.08	1963	5.26	1993	1.03
1934	13.87	1964	5.05	1994	1.00
1935	13.73	1965	4.86	1995	1.00
1936	13.34	1966	4.68	1996	1.00
1937	12.49	1967	4.29	1997	1.00
1938	12.72	1968	4.48	1998	0.99
1939	12.60	1969	4.39	1999	0.97
1940	11.96	1970	3.97	2000	0.99
1941	10.91	1971	3.82	2001	0.98

1.001.400 TABLE 4-Cost Factors For Pipeline

Year of Construction	Cost Factor	Year of Construction	Cost Factor	Year of Construction	Cost Factor
		1942	9.99	1972	3.53
1913	18.86	1943	9.77	1973	3.31
1914	19.51	1944	9.71	1974	2.93
1915	19.88	1945	9.63	1975	2.43
1916	18.35	1946	8.93	1976	2.14
1917	15.57	1947	8.30	1977	1.96
1918	13.56	1948	7.94	1978	1.78
1919	11.97	1949	7.95	1979	1.57
1920	9.80	1950	7.73	1980	1.40
1921	10.87	1951	6.94	1981	1.24
1922	11.78	1952	6.50	1982	1.16
1923	11.48	1953	6.12	1983	1.28
1924	11.61	1954	6.05	1984	1.34
1925	11.79	1955	6.00	1985	1.30
1926	11.89	1956	5.76	1986	1.30
1927	11.90	1957	5.56	1987	1.26
1928	11.62	1958	5.45	1988	1.24
1929	11.18	1959	5.39	1989	1.18
1930	11.57	1960	5.34	1990	1.13
1931	12.46	1961	5.30	1991	1.07
1932	13.43	1962	5.29	1992	1.05
1933	14.08	1963	5.26	1993	1.03
1934	13.87	1964	5.05	1994	1.00
1935	13.73	1965	4.86	1995	0.98
1936	13.34	1966	4.68	1996	0.97
1937	12.49	1967	4.29	1997	0.94
1938	12.72	1968	4.48	1998	0.91
1939	12.60	1969	4.39	1999	0.88
1940	11.96	1970	3.97	2000	0.88
1941	10.91	1971	3.82	2001	0.86

1.002 LINEAR PROPERTY DESCRIBED IN SCHEDULE A

The rates in Schedule A reflect typical costs for field installations of component types in both urban and rural municipalities. These rates apply to each component type described below regardless of the exact configuration of the system.

The rates for property described in Schedule A must be used to determine the base cost for that property and no changes or adjustments to the rates are permissible.

The base cost for linear property described in Schedule A Section 1.002 is determined as follows:

1) Select the property type.
2) Select the property component type.
3) Apply the formula associated with the property component type.

1.003 ELECTRIC POWER SYSTEMS (ELE)

1.003.100 Electric Power Distribution Systems

Formula: Base Cost = n X rate per customer hookup in each component type

Where n = the number of customer hookups in each component type

Code	Component Type	Rate Per Customer Hookup ($)
EDS 10	0 - 56 kVA or 0 - 50 kW	**700**
EDS 20	57 - 84 kVA or 51 – 76 kW	**1 500**
EDS 30	85 - 150 kVA or 77 – 135 kW	**9 000**
EDS 40	151 - 300 kVA or 136 - 270 kW	**13 000**
EDS 50	301 - 600 kVA or 271 - 540 kW	**24 000**
EDS 60	601 - 1 500 kVA or 541 - 1 350 kW	**45 000**
EDS 70	1 501 - 4 000 kVA or 1 351 - 3 600 kW	**65 000**
EDS 80	4 001 - 6 700 kVA or 3 601 - 6 000 kW	**105 000**

1.003.200 Street Lighting

Formula: Base Cost = n X rate per pole of the component type

Where n = the number of poles of the component type

Code	Component Type	Rate Per Pole ($)
ESL 10	All types and Sizes	**800**

Component Type typically includes:

- poles and fixtures
- installation

1.003.300 Oil and Gas Field Services

Formula: Base Cost = n X rate per customer hookup of the component type

Where n = the number of customer hookups of the component type

Code	Component Type	Rate Per Customer Hookup($)
EFS 10	Oil & Gas Service	**7 950**

1.003.400 Electric Power Transmission Lines

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Component Type	Rate Per Kilometre ($)
ET 10	Single Circuit–60 to 75 kV	**30 000**
ET 20	Single Circuit–76 to 150 kV	**35 500**
ET 30	Single Circuit–151 to 250 kV	**84 500**
ET 40	Single Circuit–251 to 500 kV	**198 000**
ET 50	Double Circuit–60 to 75 kV	**19 000**
ET 60	Double Circuit–76 to 150 kV	**23 000**
ET 70	Double Circuit–151 to 250 kV	**34 000**

1.004 TELECOMMUNICATION SYSTEMS

1.004.100 Cable Television Systems

1.004.200 Transmission and Distribution Line

Formula: Base Cost = n X rate per metre in each component type

Where n = length in metre(s) in each component type

Code	Component Type:	Rate Per Metre ($)
CTD 10	Trunk Line 0 to 13mm	**6.17**
CTD 20	Trunk Line 14 to 19 mm	**7.00**
CTD 30	Trunk Line 20 to 25 mm	**8.85**
CTD 40	Joint Trunk Line 13 mm with 13 mm Distribution Line	**10.56**
CTD 50	Joint Trunk Line 19 mm with 13 mm Distribution Line	**11.15**
CTD 60	Additional Trunk Line to existing Trunk Line 13 mm	**3.08**
CTD 70	Additional Trunk Line to existing Trunk Line 19 mm	**3.50**
CTD 80	Additional Trunk Line to existing Trunk Line 25 mm	**4.42**
CTD 90	Distribution Line 10 mm	**8.55**
CTD 100	Distribution Line 13 mm	**8.70**

1.004.300 Service Hookups

Formula: Base Cost = n X rate per customer hookup in each component type

Where n = the number of customer hookups in each component type

Code	Component Type	Rate Per Customer Hookup ($)
CSH 10	Single Service Drop	**45.00**
CSH 20	Service Drops Within a building	**32.00**

1.004.400 Cable Headend Equipment

Formula: Base Cost = n X rate per channel in the applicable component type

Where n = number of channels in the applicable component type

Code	Component Type	Rate Per Channel ($)
CHD 10	Under 2 000 Subscribers	**1 000**
CHD 20	2 001 to 6 000 Subscribers	**2 000**
CHD 30	Over 6 000 Subscribers	**5 000**

Note: Rates are based on a 6 MHz analog channel.

1.005 PIPELINE (PL)

In this manual, the following definitions apply:

(a) "Deepest Producing Zone" is the depth of the well used to calculate base cost. Well depth will be calculated based on one of the following variables as determined by the record at the Alberta Energy and Utilities Board:

- shoe set depth, total vertical depth, plug back depth or midpoint of the deepest producing interval. The variable chosen for the calculation will be the variable with the minimum value greater than zero.

Not withstanding the above, in the case of wells identified as confidential at the Alberta Energy and Utilities Board, the assessor may establish the depth.

(b) "Discontinued" is the status of pipe as determined by the record at Alberta Energy and Utilities Board.

(c) "Gas distribution system" means a pipeline or a system of pipelines designed, constructed, and operated for the distribution of gas to consumers in the immediate area, but does not include a gas conveyance pipeline licensed to operate under the *Pipeline Act*.

(d) "High Pressure" means design pressure 6 900 kPa (1 000 psi) or greater as determined by the record at Alberta Energy and Utilities Board or as determined by the assessor.

(e) "Licence Number" is an identification number given to the linear property by the Alberta Energy and Utilities Board.

(f) "Low pressure" means design pressure less than 6 900 kPa (1 000 psi), as determined by the Alberta Energy and Utilities Board or as determined by the assessor.

(g) "Non-producing well" means a well for which an assessment is prepared but did not produce for the period of 12 months before October 31 of the assessment year as determined by the record at Alberta Energy and Utilities Board or as determined by the assessor.

(h) "Operational" is a pipe status given to the linear property by the Alberta Energy and Utilities Board or as determined by the assessor.

(i) "Operator" has the meaning given to in the *Act*.

(j) "Permitted" is a pipe status given to the linear property by the Alberta Energy and Utilities Board or as determined by the assessor.

(k) "Pool Code" is the code found on the well record at Alberta Energy and Utilities Board.

(l) "Storage" is the status of a well as determined on the record at Alberta Energy and Utilities Board.

(m) "Suspended" is the status of a well as determined by the record at Alberta Energy and Utilities Board.

(n) "Well site" means the area of land associated with a well.

(o) "Zone" has the meaning given to it in the *Oil and Gas Conservation Act*.

Single-Zone and Multi-Zone Wells

In this section, the assessment of pipeline that is standardized well pipe, and well head installations in or on a well for which a license is required under the *Oil and Gas Conservation Act*, shall be determined according to section 1.005.300 of this manual.

Assessment Commissioner's Bulletin No. 4/83 and 2/86, (the 'Bulletins") are not prescribed by Statute or regulation. The Bulletins are not relevant to well assessment and should not be relied upon. The current legislation should be used for the definition of pipeline.

1.005.100 Pipe (PL)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm (pressure)	Rate Per Kilometre $
10	Steel	Crude Oil	0 to 24.0(LP)	**14 300**
11	Steel	Crude Oil	0 to 24.0(HP)	**15 800**
20	Steel	Crude Oil	24.1 to 30.1(LP)	**15 000**
21	Steel	Crude Oil	24.1 to 30.1(HP)	**16 400**
30	Steel	Crude Oil	30.2 to 37.8(LP)	**15 700**
31	Steel	Crude Oil	30.2 to 37.8(HP)	**17 100**
40	Steel	Crude Oil	37.9 to 45.3(LP)	**17 400**
41	Steel	Crude Oil	37.9 to 45.3(HP)	**19 100**
50	Steel	Crude Oil	45.4 to 54.3(LP)	**17 400**
51	Steel	Crude Oil	45.4 to 54.3(HP)	**19 100**
60	Steel	Crude Oil	54.4 to 74.6(LP)	**25 300**
61	Steel	Crude Oil	54.4 to 74.6(HP)	**26 200**
70	Steel	Crude Oil	74.7 to 101.6(LP)	**31 100**
71	Steel	Crude Oil	74.7 to 101.6(HP)	**32 100**
80	Steel	Crude Oil	101.7 to 141.3(LP)	**39 800**
81	Steel	Crude Oil	101.7 to 141.3(HP)	**40 900**
90	Steel	Crude Oil	141.4 to 193.7(LP)	**50 800**
91	Steel	Crude Oil	141.4 to 193.7(HP)	**58 100**
100	Steel	Crude Oil	193.8 to 246.1(LP)	**64 500**
101	Steel	Crude Oil	193.8 to 246.1(HP)	**78 800**
110	Steel	Crude Oil	246.2 to 298.5(LP)	**75 900**
111	Steel	Crude Oil	246.2 to 298.5(HP)	**92 800**
120	Steel	Crude Oil	298.6 to 339.8(LP)	**87 800**
121	Steel	Crude Oil	298.6 to 339.8(HP)	**105 600**
130	Steel	Crude Oil	339.9 to 381.0(LP)	**107 900**
131	Steel	Crude Oil	339.9 to 381.0(HP)	**126 100**
140	Steel	Crude Oil	381.1 to 431.7(LP)	**130 400**
141	Steel	Crude Oil	381.1 to 431.7(HP)	**149 000**
150	Steel	Crude Oil	431.8 to 482.5(LP)	**164 400**
151	Steel	Crude Oil	431.8 to 482.5(HP)	**182 200**
160	Steel	Crude Oil	482.6 to 533.5(LP)	**188 700**
161	Steel	Crude Oil	482.6 to 533.5(HP)	**199 600**
170	Steel	Crude Oil	533.6 to 584.5(LP)	**204 600**
171	Steel	Crude Oil	533.6 to 584.5(HP)	**231 600**
180	Steel	Crude Oil	584.6 to 635.0(LP)	**257 200**
181	Steel	Crude Oil	584.6 to 635.0(HP)	**275 300**
190	Steel	Crude Oil	635.1 to 685.5(LP)	**284 300**
191	Steel	Crude Oil	635.1 to 685.5(HP)	**300 700**
200	Steel	Crude Oil	685.6 to 736.5(LP)	**300 400**
201	Steel	Crude Oil	685.6 to 736.5(HP)	**333 000**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm (pressure)	Rate Per Kilometre $
210	Steel	Crude Oil	736.6 to 787.5(LP)	**337 500**
211	Steel	Crude Oil	736.6 to 787.5(HP)	**374 800**
220	Steel	Crude Oil	787.6 to 838.5(LP)	**373 100**
221	Steel	Crude Oil	787.6 to 838.5(HP)	**396 700**
230	Steel	Crude Oil	838.6 to 889.0(LP)	**390 400**
231	Steel	Crude Oil	838.6 to 889.0(HP)	**433 800**
240	Steel	Crude Oil	889.1 to 990.5(LP)	**432 700**
241	Steel	Crude Oil	889.1 to 990.5(HP)	**480 300**
250	Steel	Crude Oil	990.6 to 1143.0(LP)	**517 900**
251	Steel	Crude Oil	990.6 to 1143.0(HP)	**570 600**
260	Steel	Crude Oil	1143.1 to 1320.5(LP)	**653 800**
261	Steel	Crude Oil	1143.1 to 1320.5(HP)	**741 300**
270	Steel	Crude Oil	1320.6 to 1523.5(LP)	**891 900**
271	Steel	Crude Oil	1320.6 to 1523.5(HP)	**1 005 100**
280	Steel	Sour Natural Gas	0 to 24.0(HP)	**15 800**
281	Steel	Sour Natural Gas	0 to 24.0(LP)	**14 300**
290	Steel	Sour Natural Gas	24.1 to 30.1(HP)	**16 400**
291	Steel	Sour Natural Gas	24.1 to 30.1(LP)	**15 000**
300	Steel	Sour Natural Gas	30.2 to 37.8(HP)	**17 100**
301	Steel	Sour Natural Gas	30.2 to 37.8(LP)	**15 700**
310	Steel	Sour Natural Gas	37.9 to 45.3(HP)	**19 100**
311	Steel	Sour Natural Gas	37.9 to 45.3(LP)	**17 400**
320	Steel	Sour Natural Gas	45.4 to 54.3(HP)	**19 100**
321	Steel	Sour Natural Gas	45.4 to 54.3(LP)	**17 400**
340	Steel	Sour Natural Gas	54.4 to 74.6(HP)	**26 200**
341	Steel	Sour Natural Gas	54.4 to 74.6(LP)	**25 300**
350	Steel	Sour Natural Gas	74.7 to 101.6(HP)	**32 100**
351	Steel	Sour Natural Gas	74.7 to 101.6(LP)	**31 100**
360	Steel	Sour Natural Gas	101.7 to 141.3(HP)	**40 900**
361	Steel	Sour Natural Gas	101.7 to 141.3(LP)	**39 800**
370	Steel	Sour Natural Gas	141.4 to 193.7(HP)	**58 100**
371	Steel	Sour Natural Gas	141.4 to 193.7(LP)	**50 800**
380	Steel	Sour Natural Gas	193.8 to 246.1(HP)	**78 800**
381	Steel	Sour Natural Gas	193.8 to 246.1(LP)	**64 500**
390	Steel	Sour Natural Gas	246.2 to 298.5(HP)	**92 800**
391	Steel	Sour Natural Gas	246.2 to 298.5(LP)	**75 900**
400	Steel	Sour Natural Gas	298.6 to 339.8(HP)	**105 600**
401	Steel	Sour Natural Gas	298.6 to 339.8(LP)	**87 800**
410	Steel	Sour Natural Gas	339.9 to 381.0(HP)	**126 100**
411	Steel	Sour Natural Gas	339.9 to 381.0(LP)	**107 900**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm (pressure)	Rate Per Kilometre $
420	Steel	Sour Natural Gas	381.1 to 431.7(HP)	**149 000**
421	Steel	Sour Natural Gas	381.1 to 431.7(LP)	**130 400**
430	Steel	Sour Natural Gas	431.8 to 482.5(HP)	**182 200**
431	Steel	Sour Natural Gas	431.8 to 482.5(LP)	**164 400**
440	Steel	Sour Natural Gas	482.6 to 533.5(HP)	**199 600**
441	Steel	Sour Natural Gas	482.6 to 533.5(LP)	**188 700**
450	Steel	Sour Natural Gas	533.6 to 584.5(HP)	**231 600**
451	Steel	Sour Natural Gas	533.6 to 584.5(LP)	**204 600**
460	Steel	Sour Natural Gas	584.6 to 635.0(HP)	**275 300**
461	Steel	Sour Natural Gas	584.6 to 635.0(LP)	**257 200**
470	Steel	Sour Natural Gas	635.1 to 685.5(HP)	**300 700**
471	Steel	Sour Natural Gas	635.1 to 685.5(LP)	**284 300**
480	Steel	Sour Natural Gas	685.6 to 736.5(HP)	**333 000**
481	Steel	Sour Natural Gas	685.6 to 736.5(LP)	**300 400**
490	Steel	Sour Natural Gas	736.6 to 787.5(HP)	**374 800**
491	Steel	Sour Natural Gas	736.6 to 787.5(LP)	**337 500**
500	Steel	Sour Natural Gas	787.6 to 838.5(HP)	**396 700**
501	Steel	Sour Natural Gas	787.6 to 838.5(LP)	**373 100**
510	Steel	Sour Natural Gas	838.6 to 889.0(HP)	**433 800**
511	Steel	Sour Natural Gas	838.6 to 889.0(LP)	**390 400**
520	Steel	Sour Natural Gas	889.1 to 990.5(HP)	**480 300**
521	Steel	Sour Natural Gas	889.1 to 990.5(LP)	**432 700**
530	Steel	Sour Natural Gas	990.6 to 1143.0(HP)	**570 600**
531	Steel	Sour Natural Gas	990.6 to 1143.0(LP)	**517 900**
540	Steel	Sour Natural Gas	1143.1 to 1320.5(HP)	**741 300**
541	Steel	Sour Natural Gas	1143.1 to 1320.5(LP)	**653 800**
550	Steel	Sour Natural Gas	1320.6 to 1523.5(HP)	**1 005 100**
551	Steel	Sour Natural Gas	1320.6 to 1523.5(LP)	**891 900**
560	Steel	Fuel Gas	0 to 24.0(HP)	**15 800**
561	Steel	Fuel Gas	0 to 24.0(LP)	**14 300**
570	Steel	Fuel Gas	24.1 to 30.1(HP)	**16 400**
571	Steel	Fuel Gas	24.1 to 30.1(LP)	**15 000**
580	Steel	Fuel Gas	30.2 to 37.8(HP)	**17 100**
581	Steel	Fuel Gas	30.2 to 37.8(LP)	**15 700**
590	Steel	Fuel Gas	37.9 to 45.3(HP)	**19 100**
591	Steel	Fuel Gas	37.9 to 45.3(LP)	**17 400**
600	Steel	Fuel Gas	45.4 to 54.3(HP)	**19 100**
601	Steel	Fuel Gas	45.4 to 54.3(LP)	**17 400**
610	Steel	Fuel Gas	54.4 to 74.6(HP)	**26 200**
611	Steel	Fuel Gas	54.4 to 74.6(LP)	**25 300**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm (pressure)	Rate Per Kilometre $
620	Steel	Fuel Gas	74.7 to 101.6(HP)	**32 100**
621	Steel	Fuel Gas	74.7 to 101.6(LP)	**31 100**
630	Steel	Fuel Gas	101.7 to 141.3(HP)	**40 900**
631	Steel	Fuel Gas	101.7 to 141.3(LP)	**39 800**
640	Steel	Fuel Gas	141.4 to 193.7(HP)	**58 100**
641	Steel	Fuel Gas	141.4 to 193.7(LP)	**50 800**
650	Steel	Fuel Gas	193.8 to 246.1(HP)	**78 800**
651	Steel	Fuel Gas	193.8 to 246.1(LP)	**64 500**
660	Steel	Fuel Gas	246.2 to 298.5(HP)	**92 800**
661	Steel	Fuel Gas	246.2 to 298.5(LP)	**75 900**
670	Steel	Fuel Gas	298.6 to 339.8(HP)	**105 600**
671	Steel	Fuel Gas	298.6 to 339.8(LP)	**87 800**
680	Steel	Fuel Gas	339.9 to 381.0(HP)	**126 100**
681	Steel	Fuel Gas	339.9 to 381.0(LP)	**107 900**
690	Steel	Fuel Gas	381.1 to 431.7(HP)	**149 000**
691	Steel	Fuel Gas	381.1 to 431.7(LP)	**130 400**
700	Steel	Fuel Gas	431.8 to 482.5(HP)	**182 200**
701	Steel	Fuel Gas	431.8 to 482.5(LP)	**164 400**
710	Steel	Fuel Gas	482.6 to 533.5(HP)	**199 600**
711	Steel	Fuel Gas	482.6 to 533.5(LP)	**188 700**
720	Steel	Fuel Gas	533.6 to 584.5(HP)	**231 600**
721	Steel	Fuel Gas	533.6 to 584.5(LP)	**204 600**
730	Steel	Fuel Gas	584.6 to 635.0(HP)	**275 300**
731	Steel	Fuel Gas	584.6 to 635.0(LP)	**257 200**
740	Steel	Fuel Gas	635.1 to 685.5(HP)	**300 700**
741	Steel	Fuel Gas	635.1 to 685.5(LP)	**284 300**
750	Steel	Fuel Gas	685.6 to 736.5(HP)	**333 000**
751	Steel	Fuel Gas	685.6 to 736.5(LP)	**300 400**
760	Steel	Fuel Gas	736.6 to 787.5(HP)	**374 800**
761	Steel	Fuel Gas	736.6 to 787.5(LP)	**337 500**
770	Steel	Fuel Gas	787.6 to 838.5(HP)	**396 700**
771	Steel	Fuel Gas	787.6 to 838.5(LP)	**373 100**
780	Steel	Fuel Gas	838.6 to 889.0(HP)	**433 800**
781	Steel	Fuel Gas	838.6 to 889.0(LP)	**390 400**
790	Steel	Fuel Gas	889.1 to 990.5(HP)	**480 300**
791	Steel	Fuel Gas	889.1 to 990.5(LP)	**432 700**
800	Steel	Fuel Gas	990.6 to 1143.0(HP)	**570 600**
801	Steel	Fuel Gas	990.6 to 1143.0(LP)	**517 900**
810	Steel	Fuel Gas	1143.1 to 1320.5(HP)	**741 300**
811	Steel	Fuel Gas	1143.1 to 1320.5(LP)	**653 800**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm (pressure)	Rate Per Kilometre $
820	Steel	Fuel Gas	1320.6 to 1523.5(HP)	**1 005 100**
821	Steel	Fuel Gas	1320.6 to 1523.5(LP)	**891 900**
830	Steel	Fresh Water	0 to 24.0(LP)	**14 300**
831	Steel	Fresh Water	0 to 24.0(HP)	**15 800**
840	Steel	Fresh Water	24.1 to 30.1(LP)	**15 000**
841	Steel	Fresh Water	24.1 to 30.1(HP)	**16 400**
850	Steel	Fresh Water	30.2 to 37.8(LP)	**15 700**
851	Steel	Fresh Water	30.2 to 37.8(HP)	**17 100**
860	Steel	Fresh Water	37.9 to 45.3(LP)	**17 400**
861	Steel	Fresh Water	37.9 to 45.3(HP)	**19 100**
870	Steel	Fresh Water	45.4 to 54.3(LP)	**17 400**
871	Steel	Fresh Water	45.4 to 54.3(HP)	**19 100**
880	Steel	Fresh Water	54.4 to 74.6(LP)	**25 300**
881	Steel	Fresh Water	54.4 to 74.6(HP)	**26 200**
890	Steel	Fresh Water	74.7 to 101.6(LP)	**31 100**
891	Steel	Fresh Water	74.7 to 101.6(HP)	**32 100**
900	Steel	Fresh Water	101.7 to 141.3(LP)	**39 800**
901	Steel	Fresh Water	101.7 to 141.3(HP)	**40 900**
910	Steel	Fresh Water	141.4 to 193.7(LP)	**50 800**
911	Steel	Fresh Water	141.4 to 193.7(HP)	**58 100**
920	Steel	Fresh Water	193.8 to 246.1(LP)	**64 500**
921	Steel	Fresh Water	193.8 to 246.1(HP)	**78 800**
930	Steel	Fresh Water	246.2 to 298.5(LP)	**75 900**
931	Steel	Fresh Water	246.2 to 298.5(HP)	**92 800**
940	Steel	Fresh Water	298.6 to 339.8(LP)	**87 800**
941	Steel	Fresh Water	298.6 to 339.8(HP)	**105 600**
950	Steel	Fresh Water	339.9 to 381.0(LP)	**107 900**
951	Steel	Fresh Water	339.9 to 381.0(HP)	**126 100**
960	Steel	Fresh Water	381.1 to 431.7(LP)	**130 400**
961	Steel	Fresh Water	381.1 to 431.7(HP)	**149 000**
970	Steel	Fresh Water	431.8 to 482.5(LP)	**164 400**
971	Steel	Fresh Water	431.8 to 482.5(HP)	**182 200**
980	Steel	Fresh Water	482.6 to 533.5(LP)	**188 700**
981	Steel	Fresh Water	482.6 to 533.5(HP)	**199 600**
990	Steel	Fresh Water	533.6 to 584.5(LP)	**204 600**
991	Steel	Fresh Water	533.6 to 584.5(HP)	**231 600**
1000	Steel	Fresh Water	584.6 to 635.0(LP)	**257 200**
1001	Steel	Fresh Water	584.6 to 635.0(HP)	**275 300**
1010	Steel	Fresh Water	635.1 to 685.5(LP)	**284 300**
1011	Steel	Fresh Water	635.1 to 685.5(HP)	**300 700**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm (pressure)	Rate Per Kilometre $
1020	Steel	Fresh Water	685.6 to 736.5(LP)	**300 400**
1021	Steel	Fresh Water	685.6 to 736.5(HP)	**333 000**
1030	Steel	Fresh Water	736.6 to 787.5(LP)	**337 500**
1031	Steel	Fresh Water	736.6 to 787.5(HP)	**374 800**
1040	Steel	Fresh Water	787.6 to 838.5(LP)	**373 100**
1041	Steel	Fresh Water	787.6 to 838.5(HP)	**396 700**
1050	Steel	Fresh Water	838.6 to 889.0(LP)	**390 400**
1051	Steel	Fresh Water	838.6 to 889.0(HP)	**433 800**
1060	Steel	Fresh Water	889.1 to 990.5(LP)	**432 700**
1061	Steel	Fresh Water	889.1 to 990.5(HP)	**480 300**
1070	Steel	Fresh Water	990.6 to 1143.0(LP)	**517 900**
1071	Steel	Fresh Water	990.6 to 1143.0(HP)	**570 600**
1080	Steel	Fresh Water	1143.1 to 1320.5(LP)	**653 800**
1081	Steel	Fresh Water	1143.1 to 1320.5(HP)	**741 300**
1090	Steel	Fresh Water	1320.6 to 1523.5(LP)	**891 900**
1091	Steel	Fresh Water	1320.6 to 1523.5(HP)	**1 005 100**
1100	Steel	HVP Products	0 to 24.0(HP)	**15 800**
1101	Steel	HVP Products	0 to 24.0(LP)	**14 300**
1110	Steel	HVP Products	24.1 to 30.1(HP)	**16 400**
1111	Steel	HVP Products	24.1 to 30.1(LP)	**15 000**
1120	Steel	HVP Products	30.2 to 37.8(HP)	**17 100**
1121	Steel	HVP Products	30.2 to 37.8(LP)	**15 700**
1130	Steel	HVP Products	37.9 to 45.3(HP)	**19 100**
1131	Steel	HVP Products	37.9 to 45.3(LP)	**17 400**
1140	Steel	HVP Products	45.4 to 54.3(HP)	**19 100**
1141	Steel	HVP Products	45.4 to 54.3(LP)	**17 400**
1150	Steel	HVP Products	54.4 to 74.6(HP)	**26 200**
1151	Steel	HVP Products	54.4 to 74.6(LP)	**25 300**
1160	Steel	HVP Products	74.7 to 101.6(HP)	**32 100**
1161	Steel	HVP Products	74.7 to 101.6(LP)	**31 100**
1170	Steel	HVP Products	101.7 to 141.3(HP)	**40 900**
1171	Steel	HVP Products	101.7 to 141.3(LP)	**39 800**
1180	Steel	HVP Products	141.4 to 193.7(HP)	**58 100**
1181	Steel	HVP Products	141.4 to 193.7(LP)	**50 800**
1190	Steel	HVP Products	193.8 to 246.1(HP)	**78 800**
1191	Steel	HVP Products	193.8 to 246.1(LP)	**64 500**
1200	Steel	HVP Products	246.2 to 298.5(HP)	**92 800**
1201	Steel	HVP Products	246.2 to 298.5(LP)	**75 900**
1210	Steel	HVP Products	298.6 to 339.8(HP)	**105 600**
1211	Steel	HVP Products	298.6 to 339.8(LP)	**87 800**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm (pressure)	Rate Per Kilometre $
1220	Steel	HVP Products	339.9 to 381.0(HP)	**126 100**
1221	Steel	HVP Products	339.9 to 381.0(LP)	**107 900**
1230	Steel	HVP Products	381.1 to 431.7(HP)	**149 000**
1231	Steel	HVP Products	381.1 to 431.7(LP)	**130 400**
1240	Steel	HVP Products	431.8 to 482.5(HP)	**182 200**
1241	Steel	HVP Products	431.8 to 482.5(LP)	**164 400**
1250	Steel	HVP Products	482.6 to 533.5(HP)	**199 600**
1251	Steel	HVP Products	482.6 to 533.5(LP)	**188 700**
1260	Steel	HVP Products	533.6 to 584.5(HP)	**231 600**
1261	Steel	HVP Products	533.6 to 584.5(LP)	**204 600**
1270	Steel	HVP Products	584.6 to 635.0(HP)	**275 300**
1271	Steel	HVP Products	584.6 to 635.0(LP)	**257 200**
1280	Steel	HVP Products	635.1 to 685.5(HP)	**300 700**
1281	Steel	HVP Products	635.1 to 685.5(LP)	**284 300**
1290	Steel	HVP Products	685.6 to 736.5(HP)	**333 000**
1291	Steel	HVP Products	685.6 to 736.5(LP)	**300 400**
1300	Steel	HVP Products	736.6 to 787.5(HP)	**374 800**
1301	Steel	HVP Products	736.6 to 787.5(LP)	**337 500**
1310	Steel	HVP Products	787.6 to 838.5(HP)	**396 700**
1311	Steel	HVP Products	787.6 to 838.5(LP)	**373 100**
1320	Steel	HVP Products	838.6 to 889.0(HP)	**433 800**
1321	Steel	HVP Products	838.6 to 889.0(LP)	**390 400**
1330	Steel	HVP Products	889.1 to 990.5(HP)	**480 300**
1331	Steel	HVP Products	889.1 to 990.5(LP)	**432 700**
1340	Steel	HVP Products	990.6 to 1143.0(HP)	**570 600**
1341	Steel	HVP Products	990.6 to 1143.0(LP)	**517 900**
1350	Steel	HVP Products	1143.1 to 1320.5(HP)	**741 300**
1351	Steel	HVP Products	1143.1 to 1320.5(LP)	**653 800**
1360	Steel	HVP Products	1320.6 to 1523.5(HP)	**1 005 100**
1361	Steel	HVP Products	1320.6 to 1523.5(LP)	**891 900**
1370	Steel	LVP Products	0 to 24.0(LP)	**14 300**
1371	Steel	LVP Products	0 to 24.0(HP)	**15 800**
1380	Steel	LVP Products	24.1 to 30.1(LP)	**15 000**
1381	Steel	LVP Products	24.1 to 30.1(HP)	**16 400**
1390	Steel	LVP Products	30.2 to 37.8(LP)	**15 700**
1391	Steel	LVP Products	30.2 to 37.8(HP)	**17 100**
1400	Steel	LVP Products	37.9 to 45.3(LP)	**17 400**
1401	Steel	LVP Products	37.9 to 45.3(HP)	**19 100**
1410	Steel	LVP Products	45.4 to 54.3(LP)	**17 400**
1411	Steel	LVP Products	45.4 to 54.3(HP)	**19 100**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm (pressure)	Rate Per Kilometre $
1420	Steel	LVP Products	54.4 to 74.6(LP)	**25 300**
1421	Steel	LVP Products	54.4 to 74.6(HP)	**26 200**
1430	Steel	LVP Products	74.7 to 101.6(LP)	**31 100**
1431	Steel	LVP Products	74.7 to 101.6(HP)	**32 100**
1440	Steel	LVP Products	101.7 to 141.3(LP)	**39 800**
1441	Steel	LVP Products	101.7 to 141.3(HP)	**40 900**
1450	Steel	LVP Products	141.4 to 193.7(LP)	**50 800**
1451	Steel	LVP Products	141.4 to 193.7(HP)	**58 100**
1460	Steel	LVP Products	193.8 to 246.1(LP)	**64 500**
1461	Steel	LVP Products	193.8 to 246.1(HP)	**78 800**
1470	Steel	LVP Products	246.2 to 298.5(LP)	**75 900**
1471	Steel	LVP Products	246.2 to 298.5(HP)	**92 800**
1480	Steel	LVP Products	298.6 to 339.8(LP)	**87 800**
1481	Steel	LVP Products	298.6 to 339.8(HP)	**105 600**
1490	Steel	LVP Products	339.9 to 381.0(LP)	**107 900**
1491	Steel	LVP Products	339.9 to 381.0(HP)	**126 100**
1500	Steel	LVP Products	381.1 to 431.7(LP)	**130 400**
1501	Steel	LVP Products	381.1 to 431.7(HP)	**149 000**
1510	Steel	LVP Products	431.8 to 482.5(LP)	**164 400**
1511	Steel	LVP Products	431.8 to 482.5(HP)	**182 200**
1520	Steel	LVP Products	482.6 to 533.5(LP)	**188 700**
1521	Steel	LVP Products	482.6 to 533.5(HP)	**199 600**
1530	Steel	LVP Products	533.6 to 584.5(LP)	**204 600**
1531	Steel	LVP Products	533.6 to 584.5(HP)	**231 600**
1540	Steel	LVP Products	584.6 to 635.0(LP)	**257 200**
1541	Steel	LVP Products	584.6 to 635.0(HP)	**275 300**
1550	Steel	LVP Products	635.1 to 685.5(LP)	**284 300**
1551	Steel	LVP Products	635.1 to 685.5(HP)	**300 700**
1560	Steel	LVP Products	685.6 to 736.5(LP)	**300 400**
1561	Steel	LVP Products	685.6 to 736.5(HP)	**333 000**
1570	Steel	LVP Products	736.6 to 787.5(LP)	**337 500**
1571	Steel	LVP Products	736.6 to 787.5(HP)	**374 800**
1580	Steel	LVP Products	787.6 to 838.5(LP)	**373 100**
1581	Steel	LVP Products	787.6 to 838.5(HP)	**396 700**
1590	Steel	LVP Products	838.6 to 889.0(LP)	**390 400**
1591	Steel	LVP Products	838.6 to 889.0(HP)	**433 800**
1600	Steel	LVP Products	889.1 to 990.5(LP)	**432 700**
1601	Steel	LVP Products	889.1 to 990.5(HP)	**480 300**
1610	Steel	LVP Products	990.6 to 1143.0(LP)	**517 900**
1611	Steel	LVP Products	990.6 to 1143.0(HP)	**570 600**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm (pressure)	Rate Per Kilometre $
1620	Steel	LVP Products	1143.1 to 1320.5(LP)	**653 800**
1621	Steel	LVP Products	1143.1 to 1320.5(HP)	**741 300**
1630	Steel	LVP Products	1320.6 to 1523.5(LP)	**891 900**
1631	Steel	LVP Products	1320.6 to 1523.5(HP)	**1 005 100**
1640	Steel	Misc. Gases	0 to 24.0(HP)	**15 800**
1641	Steel	Misc. Gases	0 to 24.0(LP)	**14 300**
1650	Steel	Misc. Gases	24.1 to 30.1(HP)	**16 400**
1651	Steel	Misc. Gases	24.1 to 30.1(LP)	**15 000**
1660	Steel	Misc. Gases	30.2 to 37.8(HP)	**17 100**
1661	Steel	Misc. Gases	30.2 to 37.8(LP)	**15 700**
1670	Steel	Misc. Gases	37.9 to 45.3(HP)	**19 100**
1671	Steel	Misc. Gases	37.9 to 45.3(LP)	**17 400**
1680	Steel	Misc. Gases	45.4 to 54.3(HP)	**19 100**
1681	Steel	Misc. Gases	45.4 to 54.3(LP)	**17 400**
1690	Steel	Misc. Gases	54.4 to 74.6(HP)	**26 200**
1691	Steel	Misc. Gases	54.4 to 74.6(LP)	**25 300**
1700	Steel	Misc. Gases	74.7 to 101.6(HP)	**32 100**
1701	Steel	Misc. Gases	74.7 to 101.6(LP)	**31 100**
1710	Steel	Misc. Gases	101.7 to 141.3(HP)	**40 900**
1711	Steel	Misc. Gases	101.7 to 141.3(LP)	**39 800**
1720	Steel	Misc. Gases	141.4 to 193.7(HP)	**58 100**
1721	Steel	Misc. Gases	141.4 to 193.7(LP)	**50 800**
1730	Steel	Misc. Gases	193.8 to 246.1(HP)	**78 800**
1731	Steel	Misc. Gases	193.8 to 246.1(LP)	**64 500**
1740	Steel	Misc. Gases	246.2 to 298.5(HP)	**92 800**
1741	Steel	Misc. Gases	246.2 to 298.5(LP)	**75 900**
1750	Steel	Misc. Gases	298.6 to 339.8(HP)	**105 600**
1751	Steel	Misc. Gases	298.6 to 339.8(LP)	**87 800**
1760	Steel	Misc. Gases	339.9 to 381.0(HP)	**126 100**
1761	Steel	Misc. Gases	339.9 to 381.0(LP)	**107 900**
1770	Steel	Misc. Gases	381.1 to 431.7(HP)	**149 000**
1771	Steel	Misc. Gases	381.1 to 431.7(LP)	**130 400**
1780	Steel	Misc. Gases	431.8 to 482.5(HP)	**182 200**
1781	Steel	Misc. Gases	431.8 to 482.5(LP)	**164 400**
1790	Steel	Misc. Gases	482.6 to 533.5(HP)	**199 600**
1791	Steel	Misc. Gases	482.6 to 533.5(LP)	**188 700**
1800	Steel	Misc. Gases	533.6 to 584.5(HP)	**231 600**
1801	Steel	Misc. Gases	533.6 to 584.5(LP)	**204 600**
1810	Steel	Misc. Gases	584.6 to 635.0(HP)	**275 300**
1811	Steel	Misc. Gases	584.6 to 635.0(LP)	**257 200**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm (pressure)	Rate Per Kilometre $
1820	Steel	Misc. Gases	635.1 to 685.5(HP)	**300 700**
1821	Steel	Misc. Gases	635.1 to 685.5(LP)	**284 300**
1830	Steel	Misc. Gases	685.6 to 736.5(HP)	**333 000**
1831	Steel	Misc. Gases	685.6 to 736.5(LP)	**300 400**
1840	Steel	Misc. Gases	736.6 to 787.5(HP)	**374 800**
1841	Steel	Misc. Gases	736.6 to 787.5(LP)	**337 500**
1850	Steel	Misc. Gases	787.6 to 838.5(HP)	**396 700**
1851	Steel	Misc. Gases	787.6 to 838.5(LP)	**373 100**
1860	Steel	Misc. Gases	838.6 to 889.0(HP)	**433 800**
1861	Steel	Misc. Gases	838.6 to 889.0(LP)	**390 400**
1870	Steel	Misc. Gases	889.1 to 990.5(HP)	**480 300**
1871	Steel	Misc. Gases	889.1 to 990.5(LP)	**432 700**
1880	Steel	Misc. Gases	990.6 to 1143.0(HP)	**570 600**
1881	Steel	Misc. Gases	990.6 to 1143.0(LP)	**517 900**
1890	Steel	Misc. Gases	1143.1 to 1320.5(HP)	**741 300**
1891	Steel	Misc. Gases	1143.1 to 1320.5(LP)	**653 800**
1900	Steel	Misc. Gases	1320.6 to 1523.5(HP)	**1 005 100**
1901	Steel	Misc. Gases	1320.6 to 1523.5(LP)	**891 900**
1910	Steel	Misc. Liquids	0 to 24.0(LP)	**14 300**
1911	Steel	Misc. Liquids	0 to 24.0(HP)	**15 800**
1920	Steel	Misc. Liquids	24.1 to 30.1(LP)	**15 000**
1921	Steel	Misc. Liquids	24.1 to 30.1(HP)	**16 400**
1930	Steel	Misc. Liquids	30.2 to 37.8(LP)	**15 700**
1931	Steel	Misc. Liquids	30.2 to 37.8(HP)	**17 100**
1940	Steel	Misc. Liquids	37.9 to 45.3(LP)	**17 400**
1941	Steel	Misc. Liquids	37.9 to 45.3(HP)	**19 100**
1950	Steel	Misc. Liquids	45.4 to 54.3(LP)	**17 400**
1951	Steel	Misc. Liquids	45.4 to 54.3(HP)	**19 100**
1960	Steel	Misc. Liquids	54.4 to 74.6(LP)	**25 300**
1961	Steel	Misc. Liquids	54.4 to 74.6(HP)	**26 200**
1970	Steel	Misc. Liquids	74.7 to 101.6(LP)	**31 100**
1971	Steel	Misc. Liquids	74.7 to 101.6(HP)	**32 100**
1980	Steel	Misc. Liquids	101.7 to 141.3(LP)	**39 800**
1981	Steel	Misc. Liquids	101.7 to 141.3(HP)	**40 900**
1990	Steel	Misc. Liquids	141.4 to 193.7(LP)	**50 800**
1991	Steel	Misc. Liquids	141.4 to 193.7(HP)	**58 100**
2000	Steel	Misc. Liquids	193.8 to 246.1(LP)	**64 500**
2001	Steel	Misc. Liquids	193.8 to 246.1(HP)	**78 800**
2010	Steel	Misc. Liquids	246.2 to 298.5(LP)	**75 900**
2011	Steel	Misc. Liquids	246.2 to 298.5(HP)	**92 800**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm (pressure)	Rate Per Kilometre $
2020	Steel	Misc. Liquids	298.6 to 339.8(LP)	**87 800**
2021	Steel	Misc. Liquids	298.6 to 339.8(HP)	**105 600**
2030	Steel	Misc. Liquids	339.9 to 381.0(LP)	**107 900**
2031	Steel	Misc. Liquids	339.9 to 381.0(HP)	**126 100**
2040	Steel	Misc. Liquids	381.1 to 431.7(LP)	**130 400**
2041	Steel	Misc. Liquids	381.1 to 431.7(HP)	**149 000**
2050	Steel	Misc. Liquids	431.8 to 482.5(LP)	**164 400**
2051	Steel	Misc. Liquids	431.8 to 482.5(HP)	**182 200**
2060	Steel	Misc. Liquids	482.6 to 533.5(LP)	**188 700**
2061	Steel	Misc. Liquids	482.6 to 533.5(HP)	**199 600**
2070	Steel	Misc. Liquids	533.6 to 584.5(LP)	**204 600**
2071	Steel	Misc. Liquids	533.6 to 584.5(HP)	**231 600**
2080	Steel	Misc. Liquids	584.6 to 635.0(LP)	**257 200**
2081	Steel	Misc. Liquids	584.6 to 635.0(HP)	**275 300**
2090	Steel	Misc. Liquids	635.1 to 685.5(LP)	**284 300**
2091	Steel	Misc. Liquids	635.1 to 685.5(HP)	**300 700**
2100	Steel	Misc. Liquids	685.6 to 736.5(LP)	**300 400**
2101	Steel	Misc. Liquids	685.6 to 736.5(HP)	**333 000**
2110	Steel	Misc. Liquids	736.6 to 787.5(LP)	**337 500**
2111	Steel	Misc. Liquids	736.6 to 787.5(HP)	**374 800**
2120	Steel	Misc. Liquids	787.6 to 838.5(LP)	**373 100**
2121	Steel	Misc. Liquids	787.6 to 838.5(HP)	**396 700**
2130	Steel	Misc. Liquids	838.6 to 889.0(LP)	**390 400**
2131	Steel	Misc. Liquids	838.6 to 889.0(HP)	**433 800**
2140	Steel	Misc. Liquids	889.1 to 990.5(LP)	**432 700**
2141	Steel	Misc. Liquids	889.1 to 990.5(HP)	**480 300**
2150	Steel	Misc. Liquids	990.6 to 1143.0(LP)	**517 900**
2151	Steel	Misc. Liquids	990.6 to 1143.0(HP)	**570 600**
2160	Steel	Misc. Liquids	1143.1 to 1320.5(LP)	**653 800**
2161	Steel	Misc. Liquids	1143.1 to 1320.5(HP)	**741 300**
2170	Steel	Misc. Liquids	1320.6 to 1523.5(LP)	**891 900**
2171	Steel	Misc. Liquids	1320.6 to 1523.5(HP)	**1 005 100**
2180	Steel	Natural Gas	0 to 24.0(HP)	**15 800**
2181	Steel	Natural Gas	0 to 24.0(LP)	**14 300**
2190	Steel	Natural Gas	24.1 to 30.1(HP)	**16 400**
2191	Steel	Natural Gas	24.1 to 30.1(LP)	**15 000**
2200	Steel	Natural Gas	30.2 to 37.8(HP)	**17 100**
2201	Steel	Natural Gas	30.2 to 37.8(LP)	**15 700**
2210	Steel	Natural Gas	37.9 to 45.3(HP)	**19 100**
2211	Steel	Natural Gas	37.9 to 45.3(LP)	**17 400**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm (pressure)	Rate Per Kilometre $
2220	Steel	Natural Gas	45.4 to 54.3(HP)	**19 100**
2221	Steel	Natural Gas	45.4 to 54.3(LP)	**17 400**
2230	Steel	Natural Gas	54.4 to 74.6(HP)	**26 200**
2231	Steel	Natural Gas	54.4 to 74.6(LP)	**25 300**
2240	Steel	Natural Gas	74.7 to 101.6(HP)	**32 100**
2241	Steel	Natural Gas	74.7 to 101.6(LP)	**31 100**
2250	Steel	Natural Gas	101.7 to 141.3(HP)	**40 900**
2251	Steel	Natural Gas	101.7 to 141.3(LP)	**39 800**
2260	Steel	Natural Gas	141.4 to 193.7(HP)	**58 100**
2261	Steel	Natural Gas	141.4 to 193.7(LP)	**50 800**
2270	Steel	Natural Gas	193.8 to 246.1(HP)	**78 800**
2271	Steel	Natural Gas	193.8 to 246.1(LP)	**64 500**
2280	Steel	Natural Gas	246.2 to 298.5(HP)	**92 800**
2281	Steel	Natural Gas	246.2 to 298.5(LP)	**75 900**
2290	Steel	Natural Gas	298.6 to 339.8(HP)	**105 600**
2291	Steel	Natural Gas	298.6 to 339.8(LP)	**87 800**
2300	Steel	Natural Gas	339.9 to 381.0(HP)	**126 100**
2301	Steel	Natural Gas	339.9 to 381.0(LP)	**107 900**
2310	Steel	Natural Gas	381.1 to 431.7(HP)	**149 000**
2311	Steel	Natural Gas	381.1 to 431.7(LP)	**130 400**
2320	Steel	Natural Gas	431.8 to 482.5(HP)	**182 200**
2321	Steel	Natural Gas	431.8 to 482.5(LP)	**164 400**
2330	Steel	Natural Gas	482.6 to 533.5(HP)	**199 600**
2331	Steel	Natural Gas	482.6 to 533.5(LP)	**188 700**
2340	Steel	Natural Gas	533.6 to 584.5(HP)	**231 600**
2341	Steel	Natural Gas	533.6 to 584.5(LP)	**204 600**
2350	Steel	Natural Gas	584.6 to 635.0(HP)	**275 300**
2351	Steel	Natural Gas	584.6 to 635.0(LP)	**257 200**
2360	Steel	Natural Gas	635.1 to 685.5(HP)	**300 700**
2361	Steel	Natural Gas	635.1 to 685.5(LP)	**284 300**
2370	Steel	Natural Gas	685.6 to 736.5(HP)	**333 000**
2371	Steel	Natural Gas	685.6 to 736.5(LP)	**300 400**
2380	Steel	Natural Gas	736.6 to 787.5(HP)	**374 800**
2381	Steel	Natural Gas	736.6 to 787.5(LP)	**337 500**
2390	Steel	Natural Gas	787.6 to 838.5(HP)	**396 700**
2391	Steel	Natural Gas	787.6 to 838.5(LP)	**373 100**
2400	Steel	Natural Gas	838.6 to 889.0(HP)	**433 800**
2401	Steel	Natural Gas	838.6 to 889.0(LP)	**390 400**
2410	Steel	Natural Gas	889.1 to 990.5(HP)	**480 300**
2411	Steel	Natural Gas	889.1 to 990.5(LP)	**432 700**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm (pressure)	Rate Per Kilometre $
2420	Steel	Natural Gas	990.6 to 1143.0(HP)	**570 600**
2421	Steel	Natural Gas	990.6 to 1143.0(LP)	**517 900**
2430	Steel	Natural Gas	1143.1 to 1320.5(HP)	**741 300**
2431	Steel	Natural Gas	1143.1 to 1320.5(LP)	**653 800**
2440	Steel	Natural Gas	1320.6 to 1523.5(HP)	**1 005 100**
2441	Steel	Natural Gas	1320.6 to 1523.5(LP)	**891 900**
2450	Steel	Oil-Well Effluent	0 to 24.0(LP)	**14 300**
2451	Steel	Oil-Well Effluent	0 to 24.0(HP)	**15 800**
2460	Steel	Oil-Well Effluent	24.1 to 30.1(LP)	**15 000**
2461	Steel	Oil-Well Effluent	24.1 to 30.1(HP)	**16 400**
2470	Steel	Oil-Well Effluent	30.2 to 37.8(LP)	**15 700**
2471	Steel	Oil-Well Effluent	30.2 to 37.8(HP)	**17 100**
2480	Steel	Oil-Well Effluent	37.9 to 45.3(LP)	**17 400**
2481	Steel	Oil-Well Effluent	37.9 to 45.3(HP)	**19 100**
2490	Steel	Oil-Well Effluent	45.4 to 54.3(LP)	**17 400**
2491	Steel	Oil-Well Effluent	45.4 to 54.3(HP)	**19 100**
2500	Steel	Oil-Well Effluent	54.4 to 74.6(LP)	**25 300**
2501	Steel	Oil-Well Effluent	54.4 to 74.6(HP)	**26 200**
2510	Steel	Oil-Well Effluent	74.7 to 101.6(LP)	**31 100**
2511	Steel	Oil-Well Effluent	74.7 to 101.6(HP)	**32 100**
2520	Steel	Oil-Well Effluent	101.7 to 141.3(LP)	**39 800**
2521	Steel	Oil-Well Effluent	101.7 to 141.3(HP)	**40 900**
2530	Steel	Oil-Well Effluent	141.4 to 193.7(LP)	**50 800**
2531	Steel	Oil-Well Effluent	141.4 to 193.7(HP)	**58 100**
2540	Steel	Oil-Well Effluent	193.8 to 246.1(LP)	**64 500**
2541	Steel	Oil-Well Effluent	193.8 to 246.1(HP)	**78 800**
2550	Steel	Oil-Well Effluent	246.2 to 298.5(LP)	**75 900**
2551	Steel	Oil-Well Effluent	246.2 to 298.5(HP)	**92 800**
2560	Steel	Oil-Well Effluent	298.6 to 339.8(LP)	**87 800**
2561	Steel	Oil-Well Effluent	298.6 to 339.8(HP)	**105 600**
2570	Steel	Oil-Well Effluent	339.9 to 381.0(LP)	**107 900**
2571	Steel	Oil-Well Effluent	339.9 to 381.0(HP)	**126 100**
2580	Steel	Oil-Well Effluent	381.1 to 431.7(LP)	**130 400**
2581	Steel	Oil-Well Effluent	381.1 to 431.7(HP)	**149 000**
2590	Steel	Oil-Well Effluent	431.8 to 482.5(LP)	**164 400**
2591	Steel	Oil-Well Effluent	431.8 to 482.5(HP)	**182 200**
2600	Steel	Oil-Well Effluent	482.6 to 533.5(LP)	**188 700**
2601	Steel	Oil-Well Effluent	482.6 to 533.5(HP)	**199 600**
2610	Steel	Oil-Well Effluent	533.6 to 584.5(LP)	**204 600**
2611	Steel	Oil-Well Effluent	533.6 to 584.5(HP)	**231 600**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm (pressure)	Rate Per Kilometre $
2620	Steel	Oil-Well Effluent	584.6 to 635.0(LP)	**257 200**
2621	Steel	Oil-Well Effluent	584.6 to 635.0(HP)	**275 300**
2630	Steel	Oil-Well Effluent	635.1 to 685.5(LP)	**284 300**
2631	Steel	Oil-Well Effluent	635.1 to 685.5(HP)	**300 700**
2640	Steel	Oil-Well Effluent	685.6 to 736.5(LP)	**300 400**
2641	Steel	Oil-Well Effluent	685.6 to 736.5(HP)	**333 000**
2650	Steel	Oil-Well Effluent	736.6 to 787.5(LP)	**337 500**
2651	Steel	Oil-Well Effluent	736.6 to 787.5(HP)	**374 800**
2660	Steel	Oil-Well Effluent	787.6 to 838.5(LP)	**373 100**
2661	Steel	Oil-Well Effluent	787.6 to 838.5(HP)	**396 700**
2670	Steel	Oil-Well Effluent	838.6 to 889.0(LP)	**390 400**
2671	Steel	Oil-Well Effluent	838.6 to 889.0(HP)	**433 800**
2680	Steel	Oil-Well Effluent	889.1 to 990.5(LP)	**432 700**
2681	Steel	Oil-Well Effluent	889.1 to 990.5(HP)	**480 300**
2690	Steel	Oil-Well Effluent	990.6 to 1143.0(LP)	**517 900**
2691	Steel	Oil-Well Effluent	990.6 to 1143.0(HP)	**570 600**
2700	Steel	Oil-Well Effluent	1143.1 to 1320.5(LP)	**653 800**
2701	Steel	Oil-Well Effluent	1143.1 to 1320.5(HP)	**741 300**
2710	Steel	Oil-Well Effluent	1320.6 to 1523.5(LP)	**891 900**
2711	Steel	Oil-Well Effluent	1320.6 to 1523.5(HP)	**1 005 100**
2720	Steel	Salt Water	0 to 24.0(LP)	**14 300**
2721	Steel	Salt Water	0 to 24.0(HP)	**15 800**
2730	Steel	Salt Water	24.1 to 30.1(LP)	**15 000**
2731	Steel	Salt Water	24.1 to 30.1(HP)	**16 400**
2740	Steel	Salt Water	30.2 to 37.8(LP)	**15 700**
2741	Steel	Salt Water	30.2 to 37.8(HP)	**17 100**
2750	Steel	Salt Water	37.9 to 45.3(LP)	**17 400**
2751	Steel	Salt Water	37.9 to 45.3(HP)	**19 100**
2760	Steel	Salt Water	45.4 to 54.3(LP)	**17 400**
2761	Steel	Salt Water	45.4 to 54.3(HP)	**19 100**
2770	Steel	Salt Water	54.4 to 74.6(LP)	**25 300**
2771	Steel	Salt Water	54.4 to 74.6(HP)	**26 200**
2780	Steel	Salt Water	74.7 to 101.6(LP)	**31 100**
2781	Steel	Salt Water	74.7 to 101.6(HP)	**32 100**
2790	Steel	Salt Water	101.7 to 141.3(LP)	**39 800**
2791	Steel	Salt Water	101.7 to 141.3(HP)	**40 900**
2800	Steel	Salt Water	141.4 to 193.7(LP)	**50 800**
2801	Steel	Salt Water	141.4 to 193.7(HP)	**58 100**
2810	Steel	Salt Water	193.8 to 246.1(LP)	**64 500**
2811	Steel	Salt Water	193.8 to 246.1(HP)	**78 800**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm	Rate Per Kilometre $
2820	Steel	Salt Water	246.2 to 298.5(LP)	**75 900**
2821	Steel	Salt Water	246.2 to 298.5(HP)	**92 800**
2830	Steel	Salt Water	298.6 to 339.8(LP)	**87 800**
2831	Steel	Salt Water	298.6 to 339.8(HP)	**105 600**
2840	Steel	Salt Water	339.9 to 381.0(LP)	**107 900**
2841	Steel	Salt Water	339.9 to 381.0(HP)	**126 100**
2850	Steel	Salt Water	381.1 to 431.7(LP)	**130 400**
2851	Steel	Salt Water	381.1 to 431.7(HP)	**149 000**
2860	Steel	Salt Water	431.8 to 482.5(LP)	**164 400**
2861	Steel	Salt Water	431.8 to 482.5(HP)	**182 200**
2870	Steel	Salt Water	482.6 to 533.5(LP)	**188 700**
2871	Steel	Salt Water	482.6 to 533.5(HP)	**199 600**
2880	Steel	Salt Water	533.6 to 584.5(LP)	**204 600**
2881	Steel	Salt Water	533.6 to 584.5(HP)	**231 600**
2890	Steel	Salt Water	584.6 to 635.0(LP)	**257 200**
2891	Steel	Salt Water	584.6 to 635.0(HP)	**275 300**
2900	Steel	Salt Water	635.1 to 685.5(LP)	**284 300**
2901	Steel	Salt Water	635.1 to 685.5(HP)	**300 700**
2910	Steel	Salt Water	685.6 to 736.5(LP)	**300 400**
2911	Steel	Salt Water	685.6 to 736.5(HP)	**333 000**
2920	Steel	Salt Water	736.6 to 787.5(LP)	**337 500**
2921	Steel	Salt Water	736.6 to 787.5(HP)	**374 800**
2930	Steel	Salt Water	787.6 to 838.5(LP)	**373 100**
2931	Steel	Salt Water	787.6 to 838.5(HP)	**396 700**
2940	Steel	Salt Water	838.6 to 889.0(LP)	**390 400**
2941	Steel	Salt Water	838.6 to 889.0(HP)	**433 800**
2950	Steel	Salt Water	889.1 to 990.5(LP)	**432 700**
2951	Steel	Salt Water	889.1 to 990.5(HP)	**480 300**
2960	Steel	Salt Water	990.6 to 1143.0(LP)	**517 900**
2961	Steel	Salt Water	990.6 to 1143.0(HP)	**570 600**
2970	Steel	Salt Water	1143.1 to 1320.5(LP)	**653 800**
2971	Steel	Salt Water	1143.1 to 1320.5(HP)	**741 300**
2980	Steel	Salt Water	1320.6 to 1523.5(LP)	**891 900**
2981	Steel	Salt Water	1320.6 to 1523.5(HP)	**1 005 100**
3000	Polyethylene	Fuel Gas	0 to 24.0	**7 700**
3010	Polyethylene	Fuel Gas	24.1 to 30.1	**8 200**
3020	Polyethylene	Fuel Gas	30.2 to 37.8	**8 600**
3030	Polyethylene	Fuel Gas	37.9 to 45.3	**9 300**
3040	Polyethylene	Fuel Gas	45.4 to 54.3	**9 300**
3050	Polyethylene	Fuel Gas	54.4 to 74.6	**10 200**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm	Rate Per Kilometre $
3060	Polyethylene	Fuel Gas	74.7 to 101.6	**13 200**
3070	Polyethylene	Fuel Gas	101.7 to 141.3	**18 500**
3080	Polyethylene	Fuel Gas	141.4 to 193.7	**26 000**
3090	Polyethylene	Fuel Gas	193.8 to 246.1	**46 600**
3100	Polyethylene	Fuel Gas	246.2 to 298.5	**61 900**
3110	Polyethylene	Fuel Gas	298.6 to 339.8	**77 000**
3120	Polyethylene	Fresh Water	0 to 24.0	**7 700**
3130	Polyethylene	Fresh Water	24.1 to 30.1	**8 200**
3140	Polyethylene	Fresh Water	30.2 to 37.8	**8 600**
3150	Polyethylene	Fresh Water	37.9 to 45.3	**9 300**
3160	Polyethylene	Fresh Water	45.4 to 54.3	**9 300**
3170	Polyethylene	Fresh Water	54.4 to 74.6	**10 200**
3180	Polyethylene	Fresh Water	74.7 to 101.6	**13 200**
3190	Polyethylene	Fresh Water	101.7 to 141.3	**18 500**
3200	Polyethylene	Fresh Water	141.4 to 193.7	**26 000**
3210	Polyethylene	Fresh Water	193.8 to 246.1	**46 600**
3220	Polyethylene	Fresh Water	246.2 to 298.5	**61 900**
3230	Polyethylene	Fresh Water	298.6 to 339.8	**77 000**
3240	Polyethylene	HVP Products	0 to 24.0	**7 700**
3250	Polyethylene	HVP Products	24.1 to 30.1	**8 200**
3260	Polyethylene	HVP Products	30.2 to 37.8	**8 600**
3270	Polyethylene	HVP Products	37.9 to 45.3	**9 300**
3280	Polyethylene	HVP Products	45.4 to 54.3	**9 300**
3290	Polyethylene	HVP Products	54.4 to 74.6	**10 200**
3300	Polyethylene	HVP Products	74.7 to 101.6	**13 200**
3310	Polyethylene	HVP Products	101.7 to 141.3	**18 500**
3320	Polyethylene	HVP Products	141.4 to 193.7	**26 000**
3330	Polyethylene	HVP Products	193.8 to 246.1	**46 600**
3340	Polyethylene	HVP Products	246.2 to 298.5	**61 900**
3350	Polyethylene	HVP Products	298.6 to 339.8	**77 000**
3360	Polyethylene	LVP Products	0 to 24.0	**7 700**
3370	Polyethylene	LVP Products	24.1 to 30.1	**8 200**
3380	Polyethylene	LVP Products	30.2 to 37.8	**8 600**
3390	Polyethylene	LVP Products	37.9 to 45.3	**9 300**
3400	Polyethylene	LVP Products	45.4 to 54.3	**9 300**
3410	Polyethylene	LVP Products	54.4 to 74.6	**10 200**
3420	Polyethylene	LVP Products	74.7 to 101.6	**13 200**
3430	Polyethylene	LVP Products	101.7 to 141.3	**18 500**
3440	Polyethylene	LVP Products	141.4 to 193.7	**26 000**
3450	Polyethylene	LVP Products	193.8 to 246.1	**46 600**
3460	Polyethylene	LVP Products	246.2 to 298.5	**61 900**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm	Rate Per Kilometre $
3470	Polyethylene	LVP Products	298.6 to 339.8	**77 000**
3480	Polyethylene	Misc. Gases	0 to 24.0	**7 700**
3490	Polyethylene	Misc. Gases	24.1 to 30.1	**8 200**
3500	Polyethylene	Misc. Gases	30.2 to 37.8	**8 600**
3510	Polyethylene	Misc. Gases	37.9 to 45.3	**9 300**
3520	Polyethylene	Misc. Gases	45.4 to 54.3	**9 300**
3530	Polyethylene	Misc. Gases	54.4 to 74.6	**10 200**
3540	Polyethylene	Misc. Gases	74.7 to 101.6	**13 200**
3550	Polyethylene	Misc. Gases	101.7 to 141.3	**18 500**
3560	Polyethylene	Misc. Gases	141.4 to 193.7	**26 000**
3570	Polyethylene	Misc. Gases	193.8 to 246.1	**46 600**
3580	Polyethylene	Misc. Gases	246.2 to 298.5	**61 900**
3590	Polyethylene	Misc. Gases	298.6 to 339.8	**77 000**
3600	Polyethylene	Natural Gas	0 to 24.0	**7 700**
3610	Polyethylene	Natural Gas	24.1 to 30.1	**8 200**
3620	Polyethylene	Natural Gas	30.2 to 37.8	**8 600**
3630	Polyethylene	Natural Gas	37.9 to 45.3	**9 300**
3640	Polyethylene	Natural Gas	45.4 to 54.3	**9 300**
3650	Polyethylene	Natural Gas	54.4 to 74.6	**10 200**
3660	Polyethylene	Natural Gas	74.7 to 101.6	**13 200**
3670	Polyethylene	Natural Gas	101.7 to 141.3	**18 500**
3680	Polyethylene	Natural Gas	141.4 to 193.7	**26 000**
3690	Polyethylene	Natural Gas	193.8 to 246.1	**46 600**
3700	Polyethylene	Natural Gas	246.2 to 298.5	**61 900**
3710	Polyethylene	Natural Gas	298.6 to 339.8	**77 000**
3720	Polyethylene	Oil-Well Effluent	0 to 24.0	**7 700**
3730	Polyethylene	Oil-Well Effluent	24.1 to 30.1	**8 200**
3740	Polyethylene	Oil-Well Effluent	30.2 to 37.8	**8 600**
3750	Polyethylene	Oil-Well Effluent	37.9 to 45.3	**9 300**
3760	Polyethylene	Oil-Well Effluent	45.4 to 54.3	**9 300**
3770	Polyethylene	Oil-Well Effluent	54.4 to 74.6	**10 200**
3780	Polyethylene	Oil-Well Effluent	74.7 to 101.6	**13 200**
3790	Polyethylene	Oil-Well Effluent	101.7 to 141.3	**18 500**
3800	Polyethylene	Oil-Well Effluent	141.4 to 193.7	**26 000**
3810	Polyethylene	Oil-Well Effluent	193.8 to 246.1	**46 600**
3820	Polyethylene	Oil-Well Effluent	246.2 to 298.5	**61 900**
3830	Polyethylene	Oil-Well Effluent	298.6 to 339.8	**77 000**
3840	Polyethylene	Salt Water	0 to 24.0	**7 700**
3850	Polyethylene	Salt Water	24.1 to 30.1	**8 200**
3860	Polyethylene	Salt Water	30.2 to 37.8	**8 600**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm	Rate Per Kilometre $
3870	Polyethylene	Salt Water	37.9 to 45.3	**9 300**
3880	Polyethylene	Salt Water	45.4 to 54.3	**9 300**
3890	Polyethylene	Salt Water	54.4 to 74.6	**10 200**
3900	Polyethylene	Salt Water	74.7 to 101.6	**13 200**
3910	Polyethylene	Salt Water	101.7 to 141.3	**18 500**
3920	Polyethylene	Salt Water	141.4 to 193.7	**26 000**
3930	Polyethylene	Salt Water	193.8 to 246.1	**46 600**
3940	Polyethylene	Salt Water	246.2 to 298.5	**61 900**
3950	Polyethylene	Salt Water	298.6 to 339.8	**77 000**
3960	Polyvinyl	Fuel Gas	0 to 24.0	**7 700**
3970	Polyvinyl	Fuel Gas	24.1 to 30.1	**8 200**
3980	Polyvinyl	Fuel Gas	30.2 to 37.8	**8 600**
3990	Polyvinyl	Fuel Gas	37.9 to 45.3	**9 300**
4000	Polyvinyl	Fuel Gas	45.4 to 54.3	**9 300**
4010	Polyvinyl	Fuel Gas	54.4 to 74.6	**10 200**
4020	Polyvinyl	Fuel Gas	74.7 to 101.6	**13 200**
4030	Polyvinyl	Fuel Gas	101.7 to 141.3	**18 500**
4040	Polyvinyl	Fuel Gas	141.4 to 193.7	**26 000**
4050	Polyvinyl	Fuel Gas	193.8 to 246.1	**46 600**
4060	Polyvinyl	Fuel Gas	246.2 to 298.5	**61 900**
4070	Polyvinyl	Fuel Gas	298.6 to 339.8	**77 000**
4080	Polyvinyl	Fresh Water	0 to 24.0	**7 700**
4090	Polyvinyl	Fresh Water	24.1 to 30.1	**8 200**
4100	Polyvinyl	Fresh Water	30.2 to 37.8	**8 600**
4110	Polyvinyl	Fresh Water	37.9 to 45.3	**9 300**
4120	Polyvinyl	Fresh Water	45.4 to 54.3	**9 300**
4130	Polyvinyl	Fresh Water	54.4 to 74.6	**10 200**
4140	Polyvinyl	Fresh Water	74.7 to 101.6	**13 200**
4150	Polyvinyl	Fresh Water	101.7 to 141.3	**18 500**
4160	Polyvinyl	Fresh Water	141.4 to 193.7	**26 000**
4170	Polyvinyl	Fresh Water	193.8 to 246.1	**46 600**
4180	Polyvinyl	Fresh Water	246.2 to 298.5	**61 900**
4190	Polyvinyl	Fresh Water	298.6 to 339.8	**77 000**
4200	Polyvinyl	Natural Gas	0 to 24.0	**7 700**
4210	Polyvinyl	Natural Gas	24.1 to 30.1	**8 200**
4220	Polyvinyl	Natural Gas	30.2 to 37.8	**8 600**
4230	Polyvinyl	Natural Gas	37.9 to 45.3	**9 300**
4240	Polyvinyl	Natural Gas	45.4 to 54.3	**9 300**
4250	Polyvinyl	Natural Gas	54.4 to 74.6	**10 200**
4260	Polyvinyl	Natural Gas	74.7 to 101.6	**13 200**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm	Rate Per Kilometre $
4270	Polyvinyl	Natural Gas	101.7 to 141.3	**18 500**
4280	Polyvinyl	Natural Gas	141.4 to 193.7	**26 000**
4290	Polyvinyl	Natural Gas	193.8 to 246.1	**46 600**
4300	Polyvinyl	Natural Gas	246.2 to 298.5	**61 900**
4310	Polyvinyl	Natural Gas	298.6 to 339.8	**77 000**
4320	Polyvinyl	Oil-Well Effluent	0 to 24.0	**7 700**
4330	Polyvinyl	Oil-Well Effluent	24.1 to 30.1	**8 200**
4340	Polyvinyl	Oil-Well Effluent	30.2 to 37.8	**8 600**
4350	Polyvinyl	Oil-Well Effluent	37.9 to 45.3	**9 300**
4360	Polyvinyl	Oil-Well Effluent	45.4 to 54.3	**9 300**
4370	Polyvinyl	Oil-Well Effluent	54.4 to 74.6	**10 200**
4380	Polyvinyl	Oil-Well Effluent	74.7 to 101.6	**13 200**
4390	Polyvinyl	Oil-Well Effluent	101.7 to 141.3	**18 500**
4400	Polyvinyl	Oil-Well Effluent	141.4 to 193.7	**26 000**
4410	Polyvinyl	Oil-Well Effluent	193.8 to 246.1	**46 600**
4420	Polyvinyl	Oil-Well Effluent	246.2 to 298.5	**61 900**
4430	Polyvinyl	Oil-Well Effluent	298.6 to 339.8	**77 000**
4440	Polyvinyl	Sour Natural Gas	0 to 24.0	**7 700**
4450	Polyvinyl	Sour Natural Gas	24.1 to 30.1	**8 200**
4460	Polyvinyl	Sour Natural Gas	30.2 to 37.8	**8 600**
4470	Polyvinyl	Sour Natural Gas	37.9 to 45.3	**9 300**
4480	Polyvinyl	Sour Natural Gas	45.4 to 54.3	**9 300**
4490	Polyvinyl	Sour Natural Gas	54.4 to 74.6	**10 200**
4500	Polyvinyl	Sour Natural Gas	74.7 to 101.6	**13 200**
4510	Polyvinyl	Sour Natural Gas	101.7 to 141.3	**18 500**
4520	Polyvinyl	Sour Natural Gas	141.4 to 193.7	**26 000**
4530	Polyvinyl	Sour Natural Gas	193.8 to 246.1	**46 600**
4540	Polyvinyl	Sour Natural Gas	246.2 to 298.5	**61 900**
4550	Polyvinyl	Sour Natural Gas	298.6 to 339.8	**77 000**
4560	Polyvinyl	Salt Water	0 to 24.0	**7 700**
4570	Polyvinyl	Salt Water	24.1 to 30.1	**8 200**
4580	Polyvinyl	Salt Water	30.2 to 37.8	**8 600**
4590	Polyvinyl	Salt Water	37.9 to 45.3	**9 300**
4600	Polyvinyl	Salt Water	45.4 to 54.3	**9 300**
4610	Polyvinyl	Salt Water	54.4 to 74.6	**10 200**
4620	Polyvinyl	Salt Water	74.7 to 101.6	**13 200**
4630	Polyvinyl	Salt Water	101.7 to 141.3	**18 500**
4640	Polyvinyl	Salt Water	141.4 to 193.7	**26 000**
4650	Polyvinyl	Salt Water	193.8 to 246.1	**46 600**
4660	Polyvinyl	Salt Water	246.2 to 298.5	**61 900**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm	Rate Per Kilometre $
4670	Polyvinyl	Salt Water	298.6 to 339.8	**77 000**
5000	Aluminum	Crude Oil	37.9 to 45.3	**14 600**
5010	Aluminum	Crude Oil	45.4 to 54.3	**14 600**
5020	Aluminum	Crude Oil	54.4 to 74.6	**18 000**
5030	Aluminum	Crude Oil	74.7 to 101.6	**24 400**
5040	Aluminum	Crude Oil	101.7 to 141.3	**35 400**
5050	Aluminum	Fuel Gas	37.9 to 45.3	**14 600**
5060	Aluminum	Fuel Gas	45.4 to 54.3	**14 600**
5070	Aluminum	Fuel Gas	54.4 to 74.6	**18 000**
5080	Aluminum	Fuel Gas	74.7 to 101.6	**24 400**
5090	Aluminum	Fuel Gas	101.7 to 141.3	**35 400**
5100	Aluminum	Fresh Water	37.9 to 45.3	**14 600**
5110	Aluminum	Fresh Water	45.4 to 54.3	**14 600**
5120	Aluminum	Fresh Water	54.4 to 74.6	**18 000**
5130	Aluminum	Fresh Water	74.7 to 101.6	**24 400**
5140	Aluminum	Fresh Water	101.7 to 141.3	**35 400**
5150	Aluminum	HVP Products	37.9 to 45.3	**14 600**
5160	Aluminum	HVP Products	45.4 to 54.3	**14 600**
5170	Aluminum	HVP Products	54.4 to 74.6	**18 000**
5180	Aluminum	HVP Products	74.7 to 101.6	**24 400**
5190	Aluminum	HVP Products	101.7 to 141.3	**35 400**
5200	Aluminum	LVP Products	37.9 to 45.3	**14 600**
5210	Aluminum	LVP Products	45.4 to 54.3	**14 600**
5220	Aluminum	LVP Products	54.4 to 74.6	**18 000**
5230	Aluminum	LVP Products	74.7 to 101.6	**24 400**
5240	Aluminum	LVP Products	101.7 to 141.3	**35 400**
5250	Aluminum	Misc. Gases	37.9 to 45.3	**14 600**
5260	Aluminum	Misc. Gases	45.4 to 54.3	**14 600**
5270	Aluminum	Misc. Gases	54.4 to 74.6	**18 000**
5280	Aluminum	Misc. Gases	74.7 to 101.6	**24 400**
5290	Aluminum	Misc. Gases	101.7 to 141.3	**35 400**
5300	Aluminum	Natural Gas	37.9 to 45.3	**14 600**
5310	Aluminum	Natural Gas	45.4 to 54.3	**14 600**
5320	Aluminum	Natural Gas	54.4 to 74.6	**18 000**
5330	Aluminum	Natural Gas	74.7 to 101.6	**24 400**
5340	Aluminum	Natural Gas	101.7 to 141.3	**35 400**
5350	Aluminum	Oil-Well Effluent	37.9 to 45.3	**14 600**
5360	Aluminum	Oil-Well Effluent	45.4 to 54.3	**14 600**
5370	Aluminum	Oil-Well Effluent	54.4 to 74.6	**18 000**
5380	Aluminum	Oil-Well Effluent	74.7 to 101.6	**24 400**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type
Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm	Rate Per Kilometre $
5390	Aluminum	Oil-Well Effluent	101.7 to 141.3	**35 400**
5400	Aluminum	Sour Natural Gas	37.9 to 45.3	**14 600**
5410	Aluminum	Sour Natural Gas	45.4 to 54.3	**14 600**
5420	Aluminum	Sour Natural Gas	54.4 to 74.6	**18 000**
5430	Aluminum	Sour Natural Gas	74.7 to 101.6	**24 400**
5440	Aluminum	Sour Natural Gas	101.7 to 141.3	**35 400**
5450	Aluminum	Salt Water	37.9 to 45.3	**14 600**
5460	Aluminum	Salt Water	45.4 to 54.3	**14 600**
5470	Aluminum	Salt Water	54.4 to 74.6	**18 000**
5480	Aluminum	Salt Water	74.7 to 101.6	**24 400**
5490	Aluminum	Salt Water	101.7 to 141.3	**35 400**
6000	Fibreglass	Crude Oil	0 to 24.0	**7 700**
6010	Fibreglass	Crude Oil	24.1 to 30.1	**8 200**
6020	Fibreglass	Crude Oil	30.2 to 37.8	**8 600**
6030	Fibreglass	Crude Oil	37.9 to 45.3	**9 300**
6040	Fibreglass	Crude Oil	45.4 to 54.3	**9 300**
6050	Fibreglass	Crude Oil	54.4 to 74.6	**10 200**
6060	Fibreglass	Crude Oil	74.7 to 101.6	**13 200**
6070	Fibreglass	Crude Oil	101.7 to 141.3	**18 500**
6080	Fibreglass	Crude Oil	141.4 to 193.7	**26 000**
6090	Fibreglass	Crude Oil	193.8 to 246.1	**46 600**
6100	Fibreglass	Crude Oil	246.2 to 298.5	**61 900**
6110	Fibreglass	Crude Oil	298.6 to 339.8	**77 000**
6120	Fibreglass	Fuel Gas	0 to 24.0	**7 700**
6130	Fibreglass	Fuel Gas	24.1 to 30.1	**8 200**
6140	Fibreglass	Fuel Gas	30.2 to 37.8	**8 600**
6150	Fibreglass	Fuel Gas	37.9 to 45.3	**9 300**
6160	Fibreglass	Fuel Gas	45.4 to 54.3	**9 300**
6170	Fibreglass	Fuel Gas	54.4 to 74.6	**10 200**
6180	Fibreglass	Fuel Gas	74.7 to 101.6	**13 200**
6190	Fibreglass	Fuel Gas	101.7 to 141.3	**18 500**
6200	Fibreglass	Fuel Gas	141.4 to 193.7	**26 000**
6210	Fibreglass	Fuel Gas	193.8 to 246.1	**46 600**
6220	Fibreglass	Fuel Gas	246.2 to 298.5	**61 900**
6230	Fibreglass	Fuel Gas	298.6 to 339.8	**77 000**
6240	Fibreglass	Fresh Water	0 to 24.0	**7 700**
6250	Fibreglass	Fresh Water	24.1 to 30.1	**8 200**
6260	Fibreglass	Fresh Water	30.2 to 37.8	**8 600**
6270	Fibreglass	Fresh Water	37.9 to 45.3	**9 300**
6280	Fibreglass	Fresh Water	45.4 to 54.3	**9 300**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm	Rate Per Kilometre $
6290	Fibreglass	Fresh Water	54.4 to 74.6	**10 200**
6300	Fibreglass	Fresh Water	74.7 to 101.6	**13 200**
6310	Fibreglass	Fresh Water	101.7 to 141.3	**18 500**
6320	Fibreglass	Fresh Water	141.4 to 193.7	**26 000**
6330	Fibreglass	Fresh Water	193.8 to 246.1	**46 600**
6340	Fibreglass	Fresh Water	246.2 to 298.5	**61 900**
6350	Fibreglass	Fresh Water	298.6 to 339.8	**77 000**
6360	Fibreglass	Natural Gas	0 to 24.0	**7 700**
6370	Fibreglass	Natural Gas	24.1 to 30.1	**8 200**
6380	Fibreglass	Natural Gas	30.2 to 37.8	**8 600**
6390	Fibreglass	Natural Gas	37.9 to 45.3	**9 300**
6400	Fibreglass	Natural Gas	45.4 to 54.3	**9 300**
6410	Fibreglass	Natural Gas	54.4 to 74.6	**10 200**
6420	Fibreglass	Natural Gas	74.7 to 101.6	**13 200**
6430	Fibreglass	Natural Gas	101.7 to 141.3	**18 500**
6440	Fibreglass	Natural Gas	141.4 to 193.7	**26 000**
6450	Fibreglass	Natural Gas	193.8 to 246.1	**46 600**
6460	Fibreglass	Natural Gas	246.2 to 298.5	**61 900**
6470	Fibreglass	Natural Gas	298.6 to 339.8	**77 000**
6480	Fibreglass	Oil-Well Effluent	0 to 24.0	**7 700**
6490	Fibreglass	Oil-Well Effluent	24.1 to 30.1	**8 200**
6500	Fibreglass	Oil-Well Effluent	30.2 to 37.8	**8 600**
6510	Fibreglass	Oil-Well Effluent	37.9 to 45.3	**9 300**
6520	Fibreglass	Oil-Well Effluent	45.4 to 54.3	**9 300**
6530	Fibreglass	Oil-Well Effluent	54.4 to 74.6	**10 200**
6540	Fibreglass	Oil-Well Effluent	74.7 to 101.6	**13 200**
6550	Fibreglass	Oil-Well Effluent	101.7 to 141.3	**18 500**
6560	Fibreglass	Oil-Well Effluent	141.4 to 193.7	**26 000**
6570	Fibreglass	Oil-Well Effluent	193.8 to 246.1	**46 600**
6580	Fibreglass	Oil-Well Effluent	246.2 to 298.5	**61 900**
6590	Fibreglass	Oil-Well Effluent	298.6 to 339.8	**77 000**
6600	Fibreglass	Salt Water	0 to 24.0	**7 700**
6610	Fibreglass	Salt Water	24.1 to 30.1	**8 200**
6620	Fibreglass	Salt Water	30.2 to 37.8	**8 600**
6630	Fibreglass	Salt Water	37.9 to 45.3	**9 300**
6640	Fibreglass	Salt Water	45.4 to 54.3	**9 300**
6650	Fibreglass	Salt Water	54.4 to 74.6	**10 200**
6660	Fibreglass	Salt Water	74.7 to 101.6	**13 200**
6670	Fibreglass	Salt Water	101.7 to 141.3	**18 500**
6680	Fibreglass	Salt Water	141.4 to 193.7	**26 000**

1.005.100 Pipe (PL) (cont.)

Formula: Base Cost = n X rate per kilometre in each component type

Where n = length in kilometre(s) in each component type

Code	Material	Substance	Size Range mm	Rate Per Kilometre $
6690	Fibreglass	Salt Water	193.8 to 246.1	**46 600**
6700	Fibreglass	Salt Water	246.2 to 298.5	**61 900**
6710	Fibreglass	Salt Water	298.6 to 339.8	**77 000**
9010	Plastic Lined / Cement Lined		37.9 to 45.3	**32 700**
9020	Plastic Lined / Cement Lined		45.4 to 54.3	**32 700**
9030	Plastic Lined / Cement Lined		54.4 to 74.6	**36 500**
9040	Plastic Lined / Cement Lined		74.7 to 101.6	**40 500**
9050	Plastic Lined / Cement Lined		101.7 to 141.3	**53 800**
9060	Plastic Lined / Cement Lined		141.4 to 193.7	**73 600**
9070	Plastic Lined / Cement Lined		193.8 to 246.1	**98 300**
9080	Plastic Lined / Cement Lined		246.2 to 298.5	**127 400**
9090	Plastic Lined / Cement Lined		298.6 to 339.8	**144 400**
9100	Plastic Lined / Cement Lined		339.9 to 381.0	**177 500**
9110	Plastic Lined / Cement Lined		381.1 to 431.7	**230 000**
9120	Plastic Lined / Cement Lined		431.8 to 482.5	**264 300**
9130	Stainless Steel		141.4 to 193.7	**109 400**
9140	Hot Water Return		141.4 to 193.7	**123 500**
9150	Heated Sulphur		298.6 to 339.8	**391 700**
9160	Steam Injection		193.8 to 246.1	**563 500**
9170	Steam Injection		339.9 to 381.0	**770 100**
9180	Steam Injection		381.1 to 431.7	**883 900**
9190	Steam Injection		431.8 to 482.5	**981 500**
9200	Steam Injection		482.6 to 533.5	**1 069 700**

1.005.200 Gas Distribution System (GDS)

Formula: Base Cost = n X rate per customer hookup in each component type

Where n = number of customer hookups in each component type

Code	Component Type	Rate Per Customer Hookup ($)
10	8.5 cubic metres per hour or less. Service line from tap to meter.	**176.00**
20	8.5 cubic metres per hour or greater. Service line from tap to meter	**182.00**
30	8.5 cubic metres per hour or less. Meter set including meter with regulator	**181.00**
40	8.5 cubic metres per hour or greater. Meter set including meter with regulator	**1 413.00**

Note: For distribution and transmission pipe use Section 1.005 Pipeline

1.005.300 Single-Zone and Multi-Zone Wells (WL)

Formula: Base Cost = Constant + (n - 304m) X rate per metres of depth in each component type

Where n = depth in metres of the deepest producing zone in each component type.

Note: If "n" is less than 304 metres, then n equals 304 metres.

Code	Component Type	Constant ($)	Rate Per Metre ($)
10	Single-Zone–Crude Oil Flow	**39 990**	**74.80**
20	Single-Zone – Crude Oil Pump	**59 620**	**87.30**
30	Single-Zone – Gas	**30 900**	**81.90**
40	Single-Zone – Injection/Disposal/Storage	**38 320**	**91.90**
50	Single-Zone – Crude Bitumen	**77 100**	**127.10**
80	Multi-Zone – Crude Oil Flow	**50 100**	**82.00**
90	Multi-Zone – Crude Oil Pump	**71 220**	**121.20**
100	Multi-Zone – Gas	**43 980**	**83.20**
110	Multi-Zone – Injection/Disposal/Storage	**57 930**	**128.60**

Single-Zone and Multi-Zone Wells (WL)

Formula: Base Cost = Constant + (n X rate per metres of depth) in each component type.

Where n = depth in metres of the deepest producing zone in each component type.

Code	Component Type	Constant ($)	Rate Per Metre ($)
60	Single-Zone–Tubingless	**9 180**	**54.10**
70	Single-Zone–Water Source/Supply	**12 000**	**0**
230	Single-Zone–Pool Code 0158	**2 380**	**59.50**
240	Multi-Zone–Pool Code 0158	**2 380**	**59.50**

2.000 SCHEDULE B–ASSESSMENT YEAR MODIFIERS

2.001 ELECTRIC POWER SYSTEMS

Code	Property Type	Year	Assessment Year Modifier
EM 01	Electric Power Systems	2001	**1.04**

2.002 TELECOMMUNICATION SYSTEMS

Code	Property Type	Year	Assessment Year Modifier
TM 01	Telecommunication Systems*	2001	**0.99**
CM 01	Cable Television Systems	2001	**1.02**

* Does not include Cable Television Systems

2.003 PIPELINE (PL)

Code	Property Type	Year	Assessment Year Modifier
PL	Pipeline	2001	**1.17**

3.000 SCHEDULE C–DEPRECIATION

The depreciation factors prescribed in Schedule C for linear property that is described in Schedule C are exhaustive.

No additional depreciation can be applied except as specified in Schedule D.

"Age" means the chronological age or the effective age, in years.

3.001 ELECTRIC POWER SYSTEMS DEPRECIATION

The depreciation factor for electric power systems is 0.75, unless otherwise specified in this section.

Note: Procedure for using Depreciation Tables 3.001.300, 3.001.400 and 3.001.500.

Determine the size of the generation unit.

Determine the "Generation Unit Depreciation Life" (columns). The generation unit depreciation type is equal to the assessment year **minus** the year the unit is deemed to have been constructed.

Determine the "Age of Component" (rows). The age of the component is equal to the Assessment Year **minus** the year the component is deemed to have been constructed.

Size of generation unit, generation unit depreciation life and age of component are needed to arrive at the correct depreciation factor for each size of generation unit.

EXAMPLE
If there was a twenty-year-old, fifty-five megawatt generation unit, (column type 20) with a ten-year-old component (row 10) then that component would have a depreciation factor of 0.563 (column 20, row 10 page 49)

3.001.100 Substation Depreciation Factors

Age of Component	All Substations
0	1.000
1	0.960
2	0.920
3	0.870
4	0.840
5	0.800
6	0.760
7	0.720
8	0.690
9	0.660
10	0.620
11	0.590
12	0.570
13	0.540
14	0.510
15	0.490
16	0.460
17	0.440
18	0.420
19	0.400
20	0.380
21	0.360
22	0.340
23	0.320
24	0.310
25	0.290
26	0.280
27	0.260
28	0.250
29	0.240
30	0.220
31	0.210
32	0.200
33	0.190
34	0.180
35	0.170
36	0.160
37	0.150
38	0.140
39	0.130
40	0.120
41	0.120

3.001.200 Generation Facilities–Depreciation Factors–All Wind Generation

Age of Component	All Units
0	0.750
1	0.750
2	0.750
3	0.750
4	0.750
5	0.750
6	0.750
7	0.717
8	0.676
9	0.636
10	0.598
11	0.560
12	0.524
13	0.489
14	0.455
15	0.421
16	0.389
17	0.360
18	0.330
19	0.303
20	0.277
21	0.252
22	0.228
23	0.206
24	0.200
25	0.200

3.001.210 Generation Facilities–Depreciation Factors–ATCO

Age of Component	Battle River #3 & #4	HR Milner	Battle River # 5	Jasper Astoria	Sheerness #1	Sheerness #2
0	0.750	0.750	0.750	0.703	0.750	0.750
1	0.750	0.750	0.750	0.245	0.750	0.750
2	0.745	0.750	0.750	0.200	0.750	0.750
3	0.674	0.706	0.750	0.200	0.750	0.750
4	0.614	0.647	0.750	0.200	0.750	0.750
5	0.563	0.594	0.750	0.200	0.750	0.750
6	0.519	0.547	0.737	0.200	0.750	0.750
7	0.481	0.506	0.708	0.200	0.750	0.750
8	0.447	0.468	0.680	0.200	0.736	0.737
9	0.418	0.435	0.654	0.200	0.713	0.715
10	0.391	0.404	0.630	0.200	0.692	0.694
11	0.366	0.376	0.606		0.672	0.674
12	0.345	0.350	0.585		0.652	0.654
13	0.325	0.325	0.565		0.634	0.637
14	0.308	0.303	0.545		0.618	0.620
15	0.292	0.282	0.526		0.601	0.603
16	0.276	0.264	0.510		0.585	0.588
17	0.262	0.246	0.493		0.571	0.573
18	0.250	0.230	0.477		0.556	0.558
19	0.236	0.213	0.462		0.542	0.545
20	0.226	0.200	0.447		0.529	0.532
21	0.216	0.200	0.433		0.517	0.520
22	0.206	0.200	0.421		0.504	0.507
23	0.200	0.200	0.408		0.494	0.497
24	0.200	0.200	0.395		0.483	0.485
25	0.200	0.200	0.384		0.472	0.475
26	0.200		0.374		0.462	0.465
27	0.200		0.362		0.451	0.453
28	0.200		0.354		0.442	0.445
29	0.200		0.343		0.432	0.434
30	0.200		0.334		0.425	0.424
31	0.200		0.322		0.416	0.418
32	0.200		0.314		0.407	0.410
33	0.200		0.307		0.400	0.402
34	0.200		0.297		0.392	0.391
35	0.200		0.288		0.382	0.384
36			0.280		0.376	0.378
37			0.276		0.370	0.369
38			0.268		0.362	0.364
39			0.258		0.357	0.355
40			0.252		0.349	0.347

3.001.210 Generation Facilities–Depreciation Factors–ATCO (cont.)

Age of Componen	Battle River #3 & #4	HR Milner	Battle River # 5	Jasper Astoria	Sheerness #1	Sheerness #2
41			0.246		0.342	0.344
42			0.237		0.335	0.337
43			0.233		0.332	0.330
44			0.224		0.326	0.324
45			0.221		0.320	0.318
46			0.214		0.315	0.312
47			0.207		0.333	0.307
48			0.200		0.301	0.302
49			0.200		0.296	0.293
50			0.200		0.293	0.289
51					0.284	0.286
52					0.281	0.277
53					0.278	0.274
54					0.270	0.266
55					0.268	0.264
56					0.261	0.257
57					0.260	0.249
58					0.253	0.248
59					0.246	0.241
60					0.246	0.235
61					0.240	0.235
62					0.234	0.229
63					0.228	0.223
64					0.228	0.217
65					0.224	0.212
66					0.219	0.206
67					0.214	0.201
68					0.210	0.200
69					0.205	0.200
70					0.201	0.200
71					0.200	0.200
72					0.200	0.200
73					0.200	0.200
74					0.200	0.200
75					0.200	0.200

3.001.220 Generation Facilities–Depreciation Factors–EPCOR

Age of Componen	Clover Bar	Genesee
0	0.750	0.750
1	0.750	0.750
2	0.750	0.750
3	0.685	0.750
4	0.625	0.750
5	0.573	0.750
6	0.528	0.750
7	0.488	0.750
8	0.454	0.739
9	0.422	0.717
10	0.394	0.694
11	0.369	0.673
12	0.346	0.653
13	0.324	0.634
14	0.305	0.616
15	0.288	0.598
16	0.272	0.581
17	0.255	0.565
18	0.242	0.549
19	0.229	0.535
20	0.217	0.520
21	0.205	0.505
22	0.200	0.492
23	0.200	0.477
24	0.200	0.466
25	0.200	0.452
26	0.200	0.442
27	0.200	0.430
28	0.200	0.418
29	0.200	0.407
30	0.200	0.394
31	0.200	0.384
32	0.200	0.372
33	0.200	0.363
34	0.200	0.352
35	0.200	0.341
36	0.200	0.334
37	0.200	0.324
38	0.200	0.314
39	0.200	0.305
40	0.200	0.291
41	0.200	0.283
42	0.200	0.275
43	0.200	0.267
44	0.200	0.255
45	0.200	0.248
46	0.200	0.237
47	0.200	0.231
48	0.200	0.220
49	0.200	0.209
50	0.200	0.204
51	0.200	0.200
52	0.200	0.200

3.001.230 Generation Facilities–Depreciation Factors–TAU

Age of Component	Barrier	Bearspaw	Bighorn	Brazeau	Cascade
0	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750
3	0.736	0.750	0.750	0.750	0.734
4	0.681	0.735	0.750	0.750	0.678
5	0.632	0.694	0.750	0.750	0.629
6	0.589	0.657	0.750	0.742	0.585
7	0.550	0.623	0.750	0.712	0.546
8	0.515	0.593	0.750	0.684	0.511
9	0.483	0.565	0.742	0.657	0.479
10	0.454	0.540	0.722	0.632	0.449
11	0.427	0.517	0.702	0.608	0.423
12	0.403	0.495	0.684	0.586	0.398
13	0.381	0.475	0.666	0.564	0.375
14	0.360	0.457	0.649	0.544	0.354
15	0.341	0.440	0.633	0.525	0.335
16	0.323	0.424	0.618	0.507	0.317
17	0.306	0.409	0.603	0.490	0.300
18	0.290	0.395	0.589	0.473	0.284
19	0.276	0.382	0.575	0.458	0.270
20	0.262	0.370	0.562	0.443	0.256
21	0.249	0.358	0.550	0.428	0.243
22	0.237	0.347	0.537	0.415	0.230
23	0.226	0.337	0.526	0.401	0.219
24	0.215	0.327	0.515	0.389	0.208
25	0.204	0.200	0.504	0.377	0.200
26	0.200	0.200	0.493	0.365	0.200
27	0.200	0.200	0.483	0.354	0.200
28	0.200	0.200	0.473	0.343	0.200
29	0.200	0.200	0.459	0.333	0.200
30	0.200	0.200	0.441	0.323	0.200
31	0.200	0.200	0.423	0.313	0.200
32	0.200	0.200	0.404	0.304	0.200
33	0.200	0.200	0.386	0.295	0.200
34	0.200	0.200	0.368	0.287	0.200
35	0.200	0.200	0.349	0.278	0.200
36	0.200	0.200	0.331	0.264	0.200
37	0.200	0.200	0.313	0.244	0.200
38	0.200	0.200	0.294	0.224	0.200
39	0.200	0.200	0.276	0.204	0.200
40	0.200	0.200	0.258	0.200	0.200
41	0.200	0.200	0.239	0.200	0.200
42	0.200	0.200	0.221	0.200	0.200
43	0.200	0.200	0.203	0.200	0.200
44	0.200	0.200	0.200	0.200	0.200

3.001.230 Generation Facilities–Depreciation Factors–TAU (cont.)

Age of Componen	Ghost	Horseshoe	Interlakes	Kananakis	Keephills
0	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750
3	0.750	0.713	0.711	0.750	0.750
4	0.727	0.654	0.651	0.700	0.750
5	0.686	0.601	0.598	0.654	0.750
6	0.649	0.554	0.550	0.614	0.750
7	0.615	0.512	0.508	0.577	0.729
8	0.585	0.474	0.469	0.544	0.702
9	0.558	0.439	0.434	0.514	0.678
10	0.533	0.407	0.403	0.487	0.654
11	0.511	0.379	0.374	0.462	0.632
12	0.490	0.352	0.347	0.439	0.611
13	0.471	0.328	0.322	0.418	0.591
14	0.453	0.305	0.300	0.398	0.573
15	0.436	0.284	0.279	0.380	0.555
16	0.421	0.265	0.259	0.363	0.538
17	0.407	0.247	0.241	0.348	0.521
18	0.393	0.230	0.224	0.333	0.506
19	0.381	0.214	0.208	0.319	0.491
20	0.369	0.200	0.200	0.306	0.478
21	0.358	0.200	0.200	0.294	0.463
22	0.348	0.200	0.200	0.283	0.450
23	0.338	0.200	0.200	0.272	0.438
24	0.329	0.200	0.200	0.262	0.424
25	0.320	0.200	0.200	0.252	0.411
26	0.312	0.200	0.200	0.243	0.402
27	0.304	0.200	0.200	0.234	0.391
28	0.296	0.200	0.200	0.226	0.378
29	0.289	0.200	0.200	0.218	0.368
30	0.282	0.200	0.200	0.211	0.356
31	0.276	0.200	0.200	0.204	0.348
32	0.270	0.200	0.200	0.200	0.338
33	0.264	0.200	0.200	0.200	0.328
34	0.258	0.200	0.200	0.200	0.318
35	0.253	0.200	0.200	0.200	0.310
36	0.247	0.200	0.200	0.200	0.298
37	0.242	0.200	0.200	0.200	0.290
38	0.238	0.200	0.200	0.200	0.279
39	0.233	0.200	0.200	0.200	0.269
40	0.229	0.200	0.200	0.200	0.263
41	0.224	0.200	0.200	0.200	0.253
42	0.220	0.200	0.200	0.200	0.244
43	0.216	0.200	0.200	0.200	0.235
44	0.212	0.200	0.200	0.200	0.227
45	0.209	0.200	0.200	0.200	0.219
46	0.205	0.200	0.200	0.200	0.207
47	0.202	0.200	0.200	0.200	0.200
48	0.200	0.200	0.200	0.200	0.200
49	0.200	0.200	0.200	0.200	0.200
50	0.200	0.200	0.200	0.200	0.200

3.001.230 Generation Facilities–Depreciation Factors–TAU (cont.)

Age of Component	Pocaterra	Rundle	Sundance	Spray	Three Sisters	Wabamun
0	0.750	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750	0.503
2	0.750	0.750	0.750	0.750	0.750	0.355
3	0.734	0.682	0.750	0.750	0.674	0.261
4	0.678	0.616	0.750	0.703	0.608	0.200
5	0.629	0.557	0.750	0.657	0.550	0.200
6	0.585	0.505	0.725	0.617	0.499	0.200
7	0.546	0.458	0.694	0.581	0.453	0.200
8	0.511	0.415	0.666	0.548	0.412	0.200
9	0.479	0.377	0.640	0.518	0.374	0.200
10	0.449	0.342	0.615	0.491	0.341	0.200
11	0.423	0.310	0.592	0.467	0.310	0.200
12	0.398	0.281	0.569	0.444	0.282	0.200
13	0.375	0.254	0.549	0.423	0.256	0.200
14	0.354	0.228	0.530	0.404	0.232	0.200
15	0.335	0.205	0.512	0.386	0.210	0.200
16	0.319	0.200	0.495	0.369	0.200	0.200
17	0.300	0.200	0.479	0.353	0.200	0.200
18	0.284	0.200	0.463	0.339	0.200	0.200
19	0.270	0.200	0.448	0.325	0.200	0.200
20	0.256	0.200	0.433	0.312	0.200	0.200
21	0.243	0.200	0.419	0.300	0.200	0.200
22	0.230	0.200	0.406	0.289	0.200	0.200
23	0.219	0.200	0.395	0.278	0.200	0.200
24	0.208	0.200	0.382	0.268	0.200	0.200
25	0.200	0.200	0.370	0.259	0.200	0.200
26			0.360	0.250		
27			0.347	0.241		
28			0.338	0.233		
29			0.328	0.225		
30			0.318	0.218		
31			0.309	0.211		
32			0.297	0.204		
33			0.290	0.200		
34			0.280	0.200		
35			0.270	0.200		
36			0.261	0.200		
37			0.253	0.200		
38			0.245	0.200		
39			0.238	0.200		
40			0.227	0.200		
41			0.221	0.200		
42			0.212	0.200		
43			0.202	0.200		
44			0.200	0.200		
45			0.200	0.200		
46			0.200	0.200		
47			0.200	0.200		

3.001.300 Other Generation Facilities–Depreciation Factors–Less than 50 MegaWatt Units

Note: If assessment year minus age of unit is greater than 30 then use 30

Age of Component	Generation Unit Depreciation Life					
	1	2	3	4	5	6
0	0.750	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750	0.750
3	0.750	0.750	0.750	0.750	0.750	0.750
4	0.750	0.750	0.750	0.750	0.750	0.750
5	0.750	0.750	0.750	0.750	0.750	0.750
6	0.750	0.750	0.750	0.750	0.750	0.750
7	0.733	0.733	0.730	0.728	0.725	0.723
8	0.696	0.695	0.693	0.691	0.689	0.686
9	0.660	0.659	0.657	0.655	0.653	0.650
10	0.624	0.623	0.622	0.620	0.618	0.615
11	0.588	0.588	0.587	0.585	0.583	0.581
12	0.553	0.552	0.552	0.551	0.550	0.547
13	0.519	0.519	0.519	0.517	0.516	0.515
14	0.486	0.486	0.485	0.485	0.483	0.482
15	0.453	0.453	0.453	0.453	0.451	0.451
16	0.422	0.422	0.422	0.420	0.420	0.420
17	0.390	0.390	0.390	0.390	0.390	0.390
18	0.361	0.361	0.361	0.361	0.361	0.361
19	0.333	0.333	0.333	0.333	0.333	0.330
20	0.303	0.303	0.303	0.303	0.303	0.303
21	0.276	0.276	0.276	0.276	0.276	0.276
22	0.250	0.250	0.250	0.250	0.250	0.250
23	0.225	0.225	0.225	0.225	0.225	0.225
24	0.201	0.201	0.201	0.201	0.201	0.201
25	0.200	0.200	0.200	0.200	0.200	0.200

3.001.300 Other Generation Facilities–Depreciation Factors–Less than 50 MegaWatt Units (cont.)

Note: If assessment year minus age of unit is greater than 30 then use 30

Age of Component	**Generation Unit Depreciation Life**					
	7	**8**	**9**	**10**	**11**	**12**
0	0.750	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750	0.750
3	0.750	0.750	0.750	0.750	0.750	0.750
4	0.750	0.750	0.750	0.750	0.750	0.750
5	0.750	0.750	0.750	0.750	0.750	0.750
6	0.750	0.750	0.748	0.742	0.736	0.728
7	0.719	0.715	0.710	0.703	0.697	0.689
8	0.682	0.678	0.672	0.667	0.660	0.653
9	0.647	0.643	0.637	0.632	0.625	0.618
10	0.612	0.608	0.603	0.598	0.591	0.584
11	0.578	0.575	0.570	0.565	0.559	0.552
12	0.545	0.542	0.538	0.533	0.527	0.521
13	0.512	0.509	0.506	0.502	0.497	0.490
14	0.480	0.479	0.476	0.471	0.467	0.461
15	0.450	0.447	0.445	0.442	0.437	0.432
16	0.419	0.417	0.415	0.412	0.408	0.405
17	0.388	0.387	0.387	0.383	0.381	0.377
18	0.359	0.359	0.357	0.355	0.353	0.349
19	0.330	0.330	0.328	0.328	0.326	0.322
20	0.303	0.303	0.303	0.301	0.299	0.296
21	0.276	0.276	0.276	0.274	0.274	0.272
22	0.250	0.250	0.250	0.250	0.248	0.248
23	0.225	0.225	0.225	0.225	0.223	0.223
24	0.201	0.201	0.201	0.201	0.201	0.200
25	0.200	0.200	0.200	0.200	0.200	0.200

3.001.300 Other Generation Facilities–Depreciation Factors–Less than 50 MegaWatt Units (cont.)

Note: If assessment year minus age of unit is greater than 30 then use 30

Age of Component	Generation Unit Depreciation Life					
	13	14	15	16	17	18
0	0.750	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750	0.750
3	0.750	0.750	0.750	0.750	0.750	0.750
4	0.750	0.750	0.750	0.750	0.750	0.750
5	0.750	0.750	0.744	0.733	0.720	0.706
6	0.720	0.710	0.700	0.688	0.675	0.660
7	0.680	0.670	0.660	0.647	0.633	0.617
8	0.644	0.634	0.622	0.610	0.595	0.579
9	0.608	0.599	0.587	0.575	0.560	0.544
10	0.576	0.565	0.554	0.541	0.527	0.511
11	0.544	0.533	0.523	0.510	0.496	0.480
12	0.513	0.504	0.493	0.481	0.467	0.451
13	0.483	0.475	0.464	0.453	0.439	0.424
14	0.455	0.446	0.437	0.425	0.413	0.399
15	0.426	0.419	0.410	0.400	0.388	0.375
16	0.398	0.393	0.384	0.374	0.364	0.350
17	0.372	0.367	0.359	0.350	0.341	0.328
18	0.346	0.340	0.334	0.326	0.317	0.307
19	0.320	0.316	0.310	0.304	0.296	0.286
20	0.294	0.290	0.286	0.279	0.273	0.264
21	0.269	0.267	0.263	0.258	0.251	0.245
22	0.246	0.243	0.241	0.236	0.229	0.224
23	0.223	0.220	0.218	0.213	0.208	0.203
24	0.200	0.200	0.200	0.200	0.200	0.200
25						

3.001.300 Other Generation Facilities–Depreciation Factors–Less than 50 MegaWatt Units (cont.)

Note: If assessment year minus age of unit is greater than 30 then use 30

Age of Component	**Generation Unit Depreciation Life**					
	19	**20**	**21**	**22**	**23**	**24**
0	0.750	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750	0.750
3	0.750	0.750	0.750	0.750	0.735	0.708
4	0.744	0.728	0.709	0.687	0.661	0.630
5	0.691	0.672	0.652	0.627	0.599	0.565
6	0.643	0.623	0.601	0.575	0.546	0.511
7	0.600	0.580	0.557	0.530	0.500	0.464
8	0.560	0.540	0.517	0.490	0.460	0.424
9	0.525	0.504	0.481	0.454	0.424	0.389
10	0.492	0.471	0.448	0.422	0.392	0.358
11	0.462	0.442	0.419	0.393	0.364	0.330
12	0.433	0.414	0.392	0.366	0.337	0.306
13	0.407	0.388	0.366	0.341	0.314	0.284
14	0.382	0.364	0.342	0.320	0.293	0.262
15	0.359	0.341	0.321	0.298	0.273	0.244
16	0.337	0.320	0.301	0.279	0.253	0.226
17	0.314	0.299	0.281	0.260	0.236	0.210
18	0.294	0.278	0.263	0.242	0.220	0.200
19	0.273	0.259	0.243	0.225	0.204	
20	0.254	0.241	0.226	0.208	0.200	
21	0.233	0.222	0.208	0.200		
22	0.215	0.205	0.200			
23	0.200	0.200				
24						
25						

3.001.300 Other Generation Facilities–Depreciation Factors–Less than 50 MegaWatt Units (cont.)

Note: If assessment year minus age of unit is greater than 30 then use 30

Age of Component	Generation Unit Depreciation Life					
	25	**26**	**27**	**28**	**29**	**30**
0	0.750	0.750	0.750	0.750	0.750	0.633
1	0.750	0.750	0.750	0.750	0.750	0.633
2	0.750	0.745	0.699	0.633	0.528	0.340
3	0.674	0.632	0.576	0.499	0.388	0.214
4	0.592	0.545	0.485	0.407	0.299	0.200
5	0.525	0.476	0.416	0.339	0.238	
6	0.470	0.421	0.361	0.287	0.200	
7	0.424	0.375	0.317	0.246		
8	0.384	0.337	0.280	0.213		
9	0.349	0.303	0.249	0.200		
10	0.320	0.275	0.223			
11	0.293	0.249	0.200			
12	0.269	0.227				
13	0.248	0.200				
14	0.228					
15	0.210					
16	0.200					
17						
18						
19						
20						

3.001.400 Other Generation Facilities–Depreciation Factors-50–100 MegaWatt Units

Note: If assessment year minus age of unit is greater than 35 then use 35

Age of Component	Generation Unit Depreciation Life						
	1	2	3	4	5	6	7
0	0.750	0.750	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750	0.750	0.750
3	0.750	0.750	0.750	0.750	0.750	0.750	0.750
4	0.750	0.750	0.750	0.750	0.750	0.750	0.750
5	0.750	0.750	0.750	0.750	0.750	0.750	0.750
6	0.750	0.750	0.750	0.750	0.750	0.750	0.750
7	0.750	0.750	0.750	0.750	0.750	0.750	0.750
8	0.743	0.740	0.738	0.734	0.731	0.728	0.724
9	0.714	0.712	0.709	0.706	0.703	0.700	0.695
10	0.688	0.684	0.682	0.679	0.676	0.672	0.668
11	0.662	0.658	0.656	0.652	0.650	0.645	0.642
12	0.636	0.633	0.631	0.628	0.624	0.621	0.617
13	0.611	0.608	0.605	0.603	0.600	0.596	0.592
14	0.587	0.584	0.583	0.580	0.575	0.572	0.568
15	0.563	0.561	0.558	0.557	0.553	0.550	0.545
16	0.540	0.538	0.536	0.533	0.531	0.528	0.524
17	0.517	0.515	0.514	0.512	0.508	0.506	0.503
18	0.496	0.494	0.492	0.490	0.488	0.484	0.480
19	0.475	0.473	0.471	0.469	0.467	0.463	0.461
20	0.453	0.453	0.451	0.449	0.447	0.444	0.440
21	0.434	0.432	0.429	0.429	0.427	0.425	0.420
22	0.414	0.411	0.411	0.409	0.406	0.404	0.402
23	0.394	0.391	0.391	0.389	0.389	0.386	0.384
24	0.374	0.374	0.372	0.372	0.369	0.367	0.364
25	0.356	0.356	0.353	0.353	0.350	0.350	0.348
26	0.338	0.335	0.335	0.335	0.332	0.332	0.330
27	0.318	0.318	0.318	0.318	0.315	0.315	0.312
28	0.301	0.301	0.301	0.298	0.298	0.298	0.295
29	0.285	0.285	0.282	0.282	0.282	0.282	0.279
30	0.267	0.267	0.267	0.267	0.267	0.267	0.263
31	0.252	0.252	0.252	0.252	0.249	0.249	0.249
32	0.238	0.234	0.234	0.234	0.234	0.234	0.234
33	0.221	0.221	0.221	0.221	0.221	0.221	0.217
34	0.208	0.204	0.204	0.204	0.204	0.204	0.204
35	0.200	0.200	0.200	0.200	0.200	0.200	0.200

3.001.400 Other Generation Facilities–Depreciation Factors–50–100 MegaWatt Units (cont.)

Note: If assessment year minus age of unit is greater than 35 then use 35

Age of Component	Generation Unit Depreciation Life						
	8	9	10	11	12	13	14
0	0.750	0.750	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750	0.750	0.750
3	0.750	0.750	0.750	0.750	0.750	0.750	0.750
4	0.750	0.750	0.750	0.750	0.750	0.750	0.750
5	0.750	0.750	0.750	0.750	0.750	0.750	0.750
6	0.750	0.750	0.750	0.750	0.750	0.750	0.750
7	0.750	0.746	0.741	0.736	0.730	0.724	0.718
8	0.720	0.715	0.710	0.705	0.699	0.692	0.686
9	0.691	0.687	0.681	0.676	0.669	0.662	0.655
10	0.664	0.659	0.653	0.648	0.642	0.634	0.627
11	0.637	0.633	0.627	0.621	0.614	0.607	0.600
12	0.612	0.607	0.602	0.595	0.589	0.583	0.575
13	0.588	0.583	0.578	0.571	0.566	0.559	0.550
14	0.565	0.559	0.555	0.549	0.541	0.535	0.526
15	0.542	0.537	0.531	0.526	0.520	0.512	0.506
16	0.519	0.514	0.509	0.504	0.499	0.492	0.483
17	0.497	0.494	0.488	0.483	0.477	0.470	0.463
18	0.476	0.473	0.469	0.463	0.457	0.451	0.444
19	0.457	0.453	0.449	0.442	0.438	0.432	0.424
20	0.438	0.434	0.429	0.425	0.419	0.412	0.406
21	0.418	0.414	0.409	0.405	0.400	0.396	0.389
22	0.399	0.395	0.392	0.387	0.383	0.378	0.371
23	0.381	0.379	0.374	0.369	0.366	0.361	0.354
24	0.361	0.359	0.356	0.354	0.349	0.343	0.338
25	0.345	0.342	0.340	0.337	0.332	0.326	0.324
26	0.327	0.327	0.324	0.318	0.316	0.313	0.307
27	0.312	0.309	0.306	0.303	0.300	0.295	0.292
28	0.295	0.292	0.289	0.286	0.283	0.280	0.277
29	0.279	0.276	0.276	0.273	0.270	0.266	0.263
30	0.263	0.260	0.260	0.257	0.254	0.250	0.247
31	0.249	0.245	0.245	0.242	0.238	0.238	0.235
32	0.231	0.231	0.231	0.227	0.227	0.224	0.220
33	0.217	0.217	0.217	0.214	0.214	0.210	0.206
34	0.204	0.204	0.200	0.200	0.200	0.200	0.200
35	0.200	0.200					

3.001.400 Other Generation Facilities–Depreciation Factors–50–100 MegaWatt Units (cont.)

Note: If assessment year minus age of unit is greater than 35 then use 35

Age of Component	**Generation Unit Depreciation Life**						
	15	**16**	**17**	**18**	**19**	**20**	**21**
0	0.750	0.750	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750	0.750	0.750
3	0.750	0.750	0.750	0.750	0.750	0.750	0.750
4	0.750	0.750	0.750	0.750	0.750	0.750	0.750
5	0.750	0.750	0.750	0.750	0.750	0.741	0.730
6	0.745	0.737	0.730	0.721	0.710	0.699	0.687
7	0.710	0.702	0.693	0.683	0.673	0.661	0.647
8	0.677	0.669	0.660	0.649	0.638	0.625	0.612
9	0.647	0.638	0.629	0.618	0.606	0.593	0.579
10	0.619	0.609	0.600	0.588	0.577	0.563	0.549
11	0.591	0.582	0.573	0.561	0.548	0.536	0.521
12	0.566	0.556	0.546	0.536	0.523	0.509	0.495
13	0.542	0.533	0.522	0.511	0.500	0.486	0.471
14	0.519	0.510	0.500	0.488	0.476	0.462	0.448
15	0.496	0.488	0.477	0.466	0.455	0.442	0.427
16	0.475	0.466	0.456	0.446	0.434	0.420	0.407
17	0.456	0.446	0.437	0.427	0.414	0.401	0.388
18	0.436	0.426	0.419	0.407	0.396	0.384	0.371
19	0.418	0.408	0.400	0.390	0.379	0.367	0.353
20	0.399	0.391	0.382	0.372	0.361	0.350	0.337
21	0.382	0.373	0.364	0.355	0.346	0.335	0.321
22	0.364	0.357	0.350	0.340	0.331	0.319	0.307
23	0.349	0.342	0.334	0.324	0.314	0.305	0.292
24	0.333	0.325	0.318	0.310	0.299	0.289	0.279
25	0.316	0.310	0.302	0.294	0.286	0.275	0.264
26	0.302	0.296	0.288	0.282	0.273	0.262	0.254
27	0.286	0.280	0.274	0.268	0.260	0.251	0.239
28	0.271	0.268	0.262	0.253	0.247	0.238	0.229
29	0.257	0.254	0.248	0.241	0.235	0.226	0.216
30	0.244	0.241	0.234	0.228	0.221	0.215	0.205
31	0.232	0.225	0.222	0.215	0.208	0.202	0.200
32	0.217	0.213	0.210	0.203	0.200	0.200	
33	0.203	0.200	0.200	0.200			
34	0.200						
35							

3.001.400 Other Generation Facilities–Depreciation Factors–50–100 MegaWatt Units (cont.)

Note: If assessment year minus age of unit is greater than 35 then use 35

Age of Component	Generation Unit Depreciation Life						
	22	23	24	25	26	27	28
0	0.750	0.750	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750	0.750	0.750
3	0.750	0.750	0.750	0.750	0.750	0.750	0.732
4	0.750	0.750	0.741	0.724	0.705	0.684	0.658
5	0.717	0.703	0.688	0.669	0.649	0.624	0.596
6	0.673	0.658	0.641	0.621	0.599	0.573	0.544
7	0.633	0.617	0.599	0.578	0.555	0.529	0.498
8	0.597	0.580	0.561	0.540	0.517	0.489	0.459
9	0.563	0.547	0.527	0.505	0.482	0.455	0.424
10	0.533	0.515	0.496	0.474	0.450	0.423	0.393
11	0.504	0.487	0.468	0.447	0.423	0.396	0.366
12	0.479	0.461	0.442	0.421	0.397	0.370	0.341
13	0.456	0.438	0.418	0.396	0.373	0.347	0.318
14	0.433	0.415	0.396	0.375	0.351	0.326	0.298
15	0.411	0.394	0.375	0.354	0.332	0.306	0.279
16	0.391	0.374	0.356	0.335	0.313	0.289	0.262
17	0.372	0.356	0.338	0.318	0.296	0.272	0.247
18	0.355	0.340	0.320	0.301	0.280	0.257	0.232
19	0.339	0.322	0.306	0.286	0.265	0.243	0.219
20	0.322	0.307	0.290	0.273	0.251	0.230	0.206
21	0.308	0.292	0.276	0.258	0.238	0.218	0.200
22	0.293	0.279	0.262	0.246	0.227	0.205	
23	0.280	0.265	0.250	0.233	0.215	0.200	
24	0.266	0.253	0.237	0.222	0.204		
25	0.253	0.240	0.227	0.210	0.200		
26	0.240	0.229	0.215	0.201			
27	0.230	0.216	0.204	0.200			
28	0.217	0.207	0.200				
29	0.207	0.200					
30	0.200						

3.001.400 Other Generation Facilities–Depreciation Factors–50–100 MegaWatt Units (cont.)

Note: If assessment year minus age of unit is greater than 35 then use 35

Age of Component	**Generation Unit Depreciation Life**						
	29	**30**	**31**	**32**	**33**	**34**	**35**
0	0.750	0.750	0.750	0.750	0.750	0.750	0.632
1	0.750	0.750	0.750	0.750	0.750	0.750	0.632
2	0.750	0.750	0.743	0.697	0.631	0.527	0.339
3	0.705	0.672	0.629	0.574	0.498	0.388	0.214
4	0.627	0.590	0.543	0.484	0.406	0.299	0.200
5	0.563	0.523	0.475	0.414	0.338	0.237	
6	0.509	0.468	0.419	0.360	0.286	0.200	
7	0.463	0.422	0.374	0.316	0.246		
8	0.423	0.383	0.336	0.280	0.212		
9	0.389	0.349	0.303	0.249	0.200		
10	0.358	0.320	0.275	0.223			
11	0.331	0.293	0.250	0.200			
12	0.308	0.270	0.228				
13	0.286	0.249	0.209				
14	0.266	0.231	0.200				
15	0.249	0.215					
16	0.233	0.200					
17	0.218						
18	0.203						
19	0.200						
20							

3.001.500 Other Generation Facilities–Depreciation Factors–Greater than 100 MegaWatt Units

Note: If assessment year minus age of unit is greater than 40 then use 40

Age of Component	Generation Unit Depreciation Life						
	1	**2**	**3**	**4**	**5**	**6**	**7**
0	0.750	0.750	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750	0.750	0.750
3	0.750	0.750	0.750	0.750	0.750	0.750	0.750
4	0.750	0.750	0.750	0.750	0.750	0.750	0.750
5	0.750	0.750	0.750	0.750	0.750	0.750	0.750
6	0.750	0.750	0.750	0.750	0.750	0.750	0.750
7	0.750	0.750	0.750	0.750	0.750	0.750	0.750
8	0.750	0.750	0.750	0.750	0.750	0.750	0.750
9	0.750	0.750	0.750	0.750	0.750	0.750	0.750
10	0.749	0.746	0.743	0.740	0.736	0.731	0.727
11	0.729	0.725	0.722	0.718	0.715	0.710	0.705
12	0.709	0.705	0.702	0.698	0.694	0.690	0.685
13	0.689	0.687	0.682	0.678	0.674	0.670	0.665
14	0.670	0.667	0.663	0.660	0.656	0.651	0.647
15	0.652	0.649	0.646	0.641	0.636	0.632	0.627
16	0.635	0.632	0.628	0.623	0.620	0.615	0.610
17	0.619	0.615	0.610	0.606	0.603	0.597	0.592
18	0.602	0.598	0.594	0.590	0.586	0.580	0.577
19	0.585	0.581	0.577	0.573	0.569	0.565	0.558
20	0.569	0.567	0.562	0.558	0.554	0.550	0.543
21	0.554	0.551	0.547	0.542	0.538	0.533	0.529
22	0.539	0.534	0.532	0.527	0.522	0.518	0.513
23	0.525	0.520	0.517	0.512	0.507	0.505	0.500
24	0.509	0.506	0.504	0.499	0.493	0.491	0.486
25	0.496	0.493	0.488	0.485	0.480	0.477	0.472
26	0.481	0.478	0.475	0.470	0.467	0.464	0.459
27	0.470	0.464	0.461	0.458	0.455	0.449	0.446
28	0.456	0.452	0.449	0.443	0.440	0.437	0.431
29	0.442	0.439	0.436	0.433	0.429	0.423	0.420
30	0.429	0.426	0.422	0.419	0.416	0.413	0.409
31	0.416	0.413	0.410	0.406	0.403	0.399	0.396
32	0.404	0.401	0.397	0.394	0.390	0.387	0.383
33	0.392	0.389	0.385	0.382	0.382	0.378	0.371
34	0.381	0.377	0.374	0.370	0.370	0.366	0.362
35	0.366	0.366	0.362	0.359	0.359	0.355	0.351
36	0.356	0.352	0.352	0.348	0.344	0.344	0.340
37	0.346	0.342	0.342	0.338	0.334	0.334	0.329
38	0.332	0.332	0.328	0.328	0.324	0.319	0.319
39	0.322	0.318	0.318	0.314	0.314	0.310	0.306
40	0.309	0.309	0.309	0.305	0.300	0.300	0.296
41	0.301	0.296	0.296	0.296	0.292	0.292	0.287
42	0.288	0.288	0.288	0.283	0.283	0.279	0.279
43	0.280	0.275	0.275	0.275	0.271	0.271	0.266
44	0.268	0.268	0.263	0.263	0.263	0.258	0.258
45	0.256	0.256	0.256	0.256	0.251	0.251	0.246
46	0.249	0.249	0.244	0.244	0.244	0.239	0.239
47	0.238	0.238	0.238	0.233	0.233	0.233	0.228
48	0.227	0.227	0.227	0.227	0.221	0.221	0.221
49	0.221	0.216	0.216	0.216	0.216	0.210	0.210
50	0.210	0.210	0.205	0.205	0.205	0.205	0.205
51	0.200	0.200	0.200	0.200	0.200	0.200	0.200

3.001.500 Other Generation Facilities–Depreciation Factors–Greater than 100 MegaWatt Units (cont.)

Note: If assessment year minus age of unit is greater than 40 then use 40

Age of Component	**Generation Unit Depreciation Life**						
	8	**9**	**10**	**11**	**12**	**13**	**14**
0	0.750	0.750	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750	0.750	0.750
3	0.750	0.750	0.750	0.750	0.750	0.750	0.750
4	0.750	0.750	0.750	0.750	0.750	0.750	0.750
5	0.750	0.750	0.750	0.750	0.750	0.750	0.750
6	0.750	0.750	0.750	0.750	0.750	0.750	0.750
7	0.750	0.750	0.750	0.750	0.750	0.750	0.750
8	0.750	0.750	0.750	0.750	0.750	0.746	0.740
9	0.746	0.741	0.736	0.732	0.726	0.720	0.714
10	0.723	0.718	0.714	0.707	0.702	0.696	0.690
11	0.701	0.696	0.691	0.686	0.679	0.673	0.666
12	0.680	0.675	0.670	0.664	0.657	0.651	0.645
13	0.660	0.655	0.649	0.644	0.637	0.630	0.623
14	0.641	0.636	0.630	0.624	0.617	0.611	0.603
15	0.622	0.617	0.611	0.604	0.598	0.592	0.584
16	0.604	0.599	0.592	0.587	0.581	0.574	0.565
17	0.586	0.581	0.575	0.570	0.563	0.555	0.548
18	0.571	0.565	0.559	0.553	0.546	0.538	0.530
19	0.554	0.548	0.542	0.536	0.530	0.522	0.516
20	0.539	0.532	0.526	0.522	0.513	0.507	0.500
21	0.524	0.517	0.513	0.506	0.499	0.493	0.484
22	0.508	0.503	0.496	0.492	0.484	0.477	0.470
23	0.495	0.488	0.483	0.478	0.470	0.463	0.456
24	0.480	0.475	0.470	0.462	0.457	0.449	0.442
25	0.466	0.461	0.456	0.450	0.442	0.437	0.429
26	0.453	0.447	0.442	0.436	0.431	0.425	0.417
27	0.440	0.435	0.429	0.423	0.417	0.411	0.405
28	0.428	0.422	0.416	0.413	0.407	0.398	0.392
29	0.417	0.411	0.404	0.401	0.395	0.389	0.379
30	0.403	0.400	0.393	0.387	0.383	0.377	0.371
31	0.393	0.386	0.383	0.376	0.369	0.366	0.359
32	0.380	0.376	0.369	0.366	0.359	0.356	0.349
33	0.367	0.364	0.360	0.353	0.349	0.342	0.339
34	0.359	0.351	0.348	0.344	0.337	0.333	0.326
35	0.347	0.343	0.340	0.332	0.328	0.321	0.317
36	0.336	0.332	0.328	0.324	0.317	0.313	0.309
37	0.326	0.321	0.317	0.313	0.309	0.301	0.297
38	0.315	0.311	0.307	0.303	0.299	0.295	0.286
39	0.306	0.301	0.297	0.293	0.289	0.284	0.280
40	0.296	0.292	0.287	0.283	0.279	0.274	0.270
41	0.283	0.283	0.278	0.274	0.269	0.265	0.261
42	0.274	0.270	0.270	0.265	0.261	0.256	0.251
43	0.266	0.261	0.257	0.257	0.252	0.247	0.243
44	0.254	0.254	0.249	0.244	0.244	0.239	0.234
45	0.246	0.241	0.241	0.236	0.231	0.231	0.227
46	0.234	0.234	0.229	0.229	0.224	0.219	0.219
47	0.228	0.223	0.223	0.217	0.217	0.212	0.207
48	0.216	0.216	0.216	0.211	0.206	0.206	0.201
49	0.210	0.205	0.205	0.205	0.200	0.200	0.200
50	0.200	0.200	0.200	0.200			

3.001.500 Other Generation Facilities–Depreciation Factors–Greater than 100 MegaWatt Units (cont.)

Note: If assessment year minus age of unit is greater than 40 then use 40

Age of Component	Generation Unit Depreciation Life						
	15	**16**	**17**	**18**	**19**	**20**	**21**
0	0.750	0.750	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750	0.750	0.750
3	0.750	0.750	0.750	0.750	0.750	0.750	0.750
4	0.750	0.750	0.750	0.750	0.750	0.750	0.750
5	0.750	0.750	0.750	0.750	0.750	0.750	0.750
6	0.750	0.750	0.750	0.750	0.750	0.750	0.750
7	0.750	0.750	0.748	0.741	0.734	0.725	0.716
8	0.734	0.727	0.720	0.712	0.704	0.695	0.685
9	0.707	0.700	0.692	0.685	0.676	0.666	0.656
10	0.682	0.675	0.667	0.658	0.650	0.639	0.629
11	0.659	0.651	0.643	0.634	0.625	0.614	0.604
12	0.637	0.628	0.621	0.612	0.602	0.591	0.580
13	0.615	0.607	0.599	0.589	0.579	0.570	0.557
14	0.595	0.587	0.578	0.569	0.559	0.549	0.537
15	0.576	0.568	0.558	0.549	0.539	0.528	0.517
16	0.558	0.550	0.540	0.531	0.521	0.509	0.499
17	0.541	0.532	0.523	0.514	0.503	0.492	0.481
18	0.523	0.515	0.505	0.496	0.486	0.474	0.463
19	0.508	0.499	0.489	0.479	0.469	0.459	0.447
20	0.492	0.483	0.474	0.464	0.455	0.444	0.432
21	0.477	0.468	0.459	0.450	0.438	0.429	0.418
22	0.463	0.454	0.444	0.435	0.425	0.416	0.404
23	0.448	0.441	0.431	0.421	0.411	0.401	0.391
24	0.434	0.426	0.418	0.408	0.398	0.387	0.377
25	0.421	0.413	0.404	0.396	0.386	0.375	0.364
26	0.408	0.403	0.391	0.383	0.374	0.363	0.352
27	0.397	0.388	0.382	0.373	0.362	0.353	0.341
28	0.386	0.377	0.368	0.362	0.353	0.341	0.331
29	0.373	0.367	0.357	0.348	0.342	0.329	0.320
30	0.364	0.354	0.348	0.338	0.328	0.322	0.309
31	0.352	0.346	0.336	0.329	0.319	0.309	0.299
32	0.342	0.335	0.328	0.317	0.310	0.300	0.290
33	0.331	0.324	0.317	0.306	0.299	0.292	0.281
34	0.322	0.315	0.307	0.300	0.289	0.281	0.274
35	0.309	0.306	0.298	0.290	0.283	0.271	0.264
36	0.301	0.293	0.289	0.282	0.274	0.266	0.254
37	0.293	0.285	0.277	0.269	0.265	0.257	0.245
38	0.282	0.274	0.270	0.262	0.253	0.245	0.237
39	0.272	0.267	0.259	0.255	0.246	0.238	0.229
40	0.266	0.257	0.253	0.244	0.240	0.231	0.222
41	0.256	0.252	0.243	0.238	0.229	0.225	0.216
42	0.247	0.242	0.238	0.229	0.224	0.215	0.210
43	0.238	0.233	0.229	0.219	0.215	0.210	0.201
44	0.230	0.225	0.220	0.215	0.206	0.201	0.200
45	0.222	0.217	0.212	0.207	0.202	0.200	
46	0.214	0.209	0.204	0.200	0.200		
47	0.207	0.202	0.200				
48	0.200	0.200					
49							
50							

3.001.500 Other Generation Facilities–Depreciation Factors–Greater than 100 MegaWatt Units (cont.)

Note: If assessment year minus age of unit is greater than 40 then use 40

Age of Component	**Generation Unit Depreciation Life**						
	22	**23**	**24**	**25**	**26**	**27**	**28**
0	0.750	0.750	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750	0.750	0.750
3	0.750	0.750	0.750	0.750	0.750	0.750	0.750
4	0.750	0.750	0.750	0.750	0.750	0.750	0.750
5	0.750	0.750	0.750	0.750	0.738	0.724	0.710
6	0.741	0.731	0.721	0.708	0.696	0.681	0.665
7	0.707	0.696	0.684	0.672	0.658	0.642	0.625
8	0.675	0.663	0.651	0.638	0.623	0.606	0.588
9	0.645	0.634	0.620	0.606	0.591	0.575	0.556
10	0.618	0.605	0.592	0.578	0.562	0.544	0.526
11	0.592	0.580	0.566	0.551	0.535	0.517	0.499
12	0.569	0.555	0.541	0.527	0.510	0.493	0.474
13	0.545	0.533	0.519	0.504	0.487	0.469	0.450
14	0.525	0.511	0.497	0.482	0.465	0.448	0.428
15	0.504	0.491	0.477	0.462	0.445	0.427	0.408
16	0.485	0.473	0.458	0.442	0.427	0.410	0.390
17	0.468	0.456	0.441	0.425	0.408	0.392	0.374
18	0.451	0.438	0.424	0.409	0.392	0.376	0.357
19	0.434	0.422	0.408	0.394	0.377	0.359	0.341
20	0.421	0.406	0.393	0.378	0.363	0.346	0.327
21	0.405	0.393	0.378	0.364	0.348	0.333	0.315
22	0.392	0.378	0.366	0.350	0.335	0.319	0.302
23	0.379	0.366	0.352	0.337	0.322	0.307	0.290
24	0.367	0.354	0.341	0.325	0.310	0.294	0.279
25	0.353	0.342	0.329	0.316	0.299	0.283	0.267
26	0.341	0.330	0.316	0.304	0.288	0.273	0.257
27	0.330	0.318	0.306	0.292	0.277	0.262	0.248
28	0.319	0.307	0.295	0.283	0.268	0.253	0.238
29	0.310	0.298	0.285	0.273	0.260	0.244	0.229
30	0.299	0.289	0.276	0.263	0.250	0.234	0.221
31	0.289	0.279	0.265	0.255	0.242	0.228	0.212
32	0.279	0.269	0.259	0.245	0.231	0.220	0.203
33	0.271	0.260	0.249	0.239	0.224	0.210	0.200
34	0.263	0.252	0.241	0.230	0.215	0.204	
35	0.252	0.245	0.233	0.222	0.211	0.200	
36	0.246	0.235	0.227	0.215	0.203		
37	0.237	0.229	0.217	0.205	0.200		
38	0.229	0.220	0.208	0.200			
39	0.221	0.212	0.204				
40	0.214	0.205	0.200				
41	0.207	0.200					
42	0.201						
43	0.200						
44							
45							

3.001.500 Other Generation Facilities–Depreciation Factors–Greater than 100 MegaWatt Units (cont.)

Note: If assessment year minus age of unit is greater than 40 then use 40

Age of Component	Generation Unit Depreciation Life						
	29	**30**	**31**	**32**	**33**	**34**	**35**
0	0.750	0.750	0.750	0.750	0.750	0.750	0.750
1	0.750	0.750	0.750	0.750	0.750	0.750	0.750
2	0.750	0.750	0.750	0.750	0.750	0.750	0.750
3	0.750	0.750	0.750	0.750	0.734	0.707	0.674
4	0.746	0.729	0.710	0.687	0.661	0.630	0.592
5	0.693	0.674	0.653	0.628	0.600	0.566	0.525
6	0.647	0.627	0.604	0.578	0.548	0.512	0.471
7	0.606	0.585	0.560	0.533	0.502	0.467	0.425
8	0.569	0.547	0.522	0.494	0.463	0.427	0.385
9	0.535	0.513	0.489	0.460	0.429	0.393	0.352
10	0.506	0.483	0.458	0.429	0.398	0.363	0.323
11	0.478	0.455	0.429	0.402	0.371	0.336	0.297
12	0.452	0.429	0.404	0.376	0.346	0.312	0.274
13	0.429	0.407	0.381	0.354	0.325	0.291	0.253
14	0.407	0.385	0.361	0.333	0.304	0.271	0.235
15	0.388	0.365	0.341	0.316	0.285	0.254	0.218
16	0.369	0.347	0.323	0.298	0.269	0.238	0.204
17	0.352	0.330	0.307	0.281	0.254	0.223	0.200
18	0.338	0.315	0.292	0.267	0.240	0.211	
19	0.322	0.300	0.278	0.253	0.227	0.200	
20	0.307	0.288	0.264	0.241	0.215		
21	0.294	0.274	0.251	0.229	0.204		
22	0.283	0.262	0.241	0.217	0.200		
23	0.270	0.250	0.230	0.208			
24	0.261	0.240	0.219	0.200			
25	0.248	0.229	0.210				
26	0.240	0.220	0.201				
27	0.230	0.210	0.200				
28	0.220	0.201					
29	0.213	0.200					
30	0.205						
31	0.200						
32							
33							
34							
35							

3.001.500 Other Generation Facilities–Depreciation Factors–Greater than 100 MegaWatt Units (cont.)

Note: If assessment year minus age of unit is greater than 40 then use 40

Age of Component	Generation Unit Depreciation Life				
	36	**37**	**38**	**39**	**40**
0	0.750	0.750	0.750	0.750	0.633
1	0.750	0.750	0.750	0.750	0.633
2	0.744	0.698	0.632	0.528	0.339
3	0.631	0.575	0.499	0.388	0.214
4	0.545	0.485	0.406	0.299	0.200
5	0.476	0.416	0.339	0.238	
6	0.422	0.361	0.287	0.200	
7	0.376	0.317	0.246		
8	0.338	0.281	0.213		
9	0.305	0.250	0.200		
10	0.277	0.225			
11	0.253	0.202			
12	0.231	0.200			
13	0.212				
14	0.200				
15					

3.002 STREET LIGHTING

The depreciation factor for street lighting is 0.75.

3.003 TELECOMMUNICATION SYSTEMS DEPRECIATION FACTORS

3.003.100 Telephone Systems

The depreciation factor for telephone systems is 0.75.

3.003.200 Cable Television Systems

The depreciation factor for cable television systems is 0.75.

3.004 PIPELINE DEPRECIATION FACTORS

The depreciation factor for pipeline is 0.75.

4.000 SCHEDULE D–ADDITIONAL DEPRECIATION

The additional depreciation for Linear Property described in Schedule C, as specified in Schedule D, is exhaustive. No further additional depreciation is to be given by the assessors.

4.001 ELECTRIC POWER SYSTEMS DEPRECIATION FACTORS

For generation plants and substations the assessor may adjust for additional depreciation provided acceptable evidence of loss exists.

4.002 TELECOMMUNICATION SYSTEMS DEPRECIATION FACTORS

4.002.100 Cable Television Systems

Service Drops, Transmission and Distribution Line
Additional depreciation of cable television systems shall be determined using the table and formula below.

Penetration Rate	Depreciation Factor
80 and above	**1.00**
75 to 79.99	**0.95**
70 to 74.99	**0.90**
65 to 69.99	**0.85**
60 to 64.99	**0.80**
55 to 59.99	**0.75**
50 to 54.99	**0.70**
45 to 49.99	**0.65**
40 to 44.99	**0.60**
35 to 39.99	**0.55**
Under 35	**0.50**

Note: Formula to Determine Penetration Rate Percentage =
(total operational services divided by total services per cable system) X 100

4.003 PIPELINE (PL)

4.003.100 Pipe

Additional depreciation of pipe shall be determined using the table below.

Code	Description	Depreciation Factor
W	Pipe that has a from facility code WE and the from location is within an LSD that has a Non Producing Well	**0.10**
D	Discontinued	**0.10**
B	Pipe Constructed prior to 1940*	**0.50**

*Status declared by each company.

4.003.200 Single-Zone and Multi-Zone Wells

Additional depreciation for a well shall be determined using the table below. The operational data of a well is complied for the period of 12 months before October 31 of the assessment year as determined on the record at Alberta Energy and Utilities Board.

Additional Depreciation Factor Table

Code	Single-Zone and Multi-Zone Wells	Depreciation Factor
	Non-producing well	**0.10**
	Suspended well*	**0.10**
	Operational Oil well thru-put >477 m^3	**1.00**
	Operational Oil well thru-put >397 – 477 m^3	**0.86**
	Operational Oil well thru-put >318 - 397 m^3	**0.72**
	Operational Oil well thru-put >238 - 318 m^3	**0.57**
	Operational Oil well thru-put >159 - 238 m^3	**0.43**
	Operational Oil well thru-put >79 - 159 m^3	**0.29**
	Operational Oil well thru-put 1 - 79 m^3	**0.15**
	Operational Gas well thru-put >507 10^3m^3	**1.00**
	Operational Gas well thru-put >423 – 507 10^3m^3	**0.86**
	Operational Gas well thru-put >282 – 423 10^3m^3	**0.62**
	Operational Gas well thru-put >141 – 282 10^3m^3	**0.39**
	Operational Gas well thru-put 1 – 141 10^3m^3	**0.15**
	Operational Pool Code 0158 well thru-put >183 10^3m^3	**1.00**
	Operational Pool Code 0158 well thru-put >142 – 183 10^3m^3	**0.86**
	Operational Pool Code 0158 well thru-put >86 – 142 10^3m^3	**0.62**
	Operational Pool Code 0158 well thru-put >29 – 86 10^3m^3	**0.39**
	Operational Pool Code 0158 well thru-put 1 – 29 10^3m^3	**0.15**
	Injection/Disposal/Storage well operating >720 hrs	**1.00**
	Injection/Disposal/Storage well operating >599 – 720 hrs	**0.86**
	Injection/Disposal/Storage well operating >359 – 599 hrs	**0.72**
	Injection/Disposal/Storage well operating >139 – 359 hrs	**0.49**
	Injection/Disposal/Storage well operating 1 – 139 hrs	**0.15**
	Water Source/Supply well operating >720 hrs	**1.00**
	Water Source/Supply well operating >599 – 720 hrs	**0.86**
	Water Source/Supply well operating >359 – 599 hrs	**0.72**
	Water Source/Supply well operating >139 – 359 hrs	**0.49**
	Water Source/Supply well operating 1 – 139 hrs	**0.15**

*Apply factor to operating well type prior to suspended status occurring.

5.000 SCHEDULE E–WELL SITE LAND (WS)

The assessed value for well site land shall be as prescribed in the table.

Geographic Boundary Description	Assessment Amount Per Well ($)
(WS) All locations	**1 460**

APPENDIX III

2001

ALBERTA MACHINERY & EQUIPMENT ASSESSMENT MANUAL

Alberta
MUNICIPAL AFFAIRS

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1.000 SCHEDULE A –BASE COST

1.001 MACHINERY AND EQUIPMENT NOT DESCRIBED IN SCHEDULE A

The factors in Table 1 and the formula below shall be used to determine the base cost for machinery and equipment that is not described in Schedule A.

Formula: Base Cost = ac X cf

Where ac = the cost of machinery and equipment determined in accordance with Appendix V of the Minister's Guidelines.

cf = the cost factor to convert the cost of the machinery and equipment (ac) from the year it was constructed in, to its cost in 1994.

TABLE 1–Cost Factors

Year of Construction	Cost Factor	Year of Construction	Cost Factor	Year of Construction	Cost Factor
		1942	9.99	1972	3.53
1913	18.86	1943	9.77	1973	3.31
1914	19.51	1944	9.71	1974	2.93
1915	19.88	1945	9.63	1975	2.43
1916	18.35	1946	8.93	1976	2.14
1917	15.57	1947	8.30	1977	1.96
1918	13.56	1948	7.94	1978	1.78
1919	11.97	1949	7.95	1979	1.57
1920	9.80	1950	7.73	1980	1.40
1921	10.87	1951	6.94	1981	1.24
1922	11.78	1952	6.50	1982	1.16
1923	11.48	1953	6.12	1983	1.28
1924	11.61	1954	6.05	1984	1.34
1925	11.79	1955	6.00	1985	1.30
1926	11.89	1956	5.76	1986	1.30
1927	11.90	1957	5.56	1987	1.26
1928	11.62	1958	5.45	1988	1.24
1929	11.18	1959	5.39	1989	1.18
1930	11.57	1960	5.34	1990	1.13
1931	12.46	1961	5.30	1991	1.07
1932	13.43	1962	5.29	1992	1.05
1933	14.08	1963	5.26	1993	1.03
1934	13.87	1964	5.05	1994	1.00
1935	13.73	1965	4.86	1995	0.98
1936	13.34	1966	4.68	1996	0.97
1937	12.49	1967	4.29	1997	0.94
1938	12.72	1968	4.48	1998	0.91
1939	12.60	1969	4.39	1999	0.88
1940	11.96	1970	3.97	2000	0.88
1941	10.91	1971	3.82	2001	0.85

1.005 MACHINERY AND EQUIPMENT DESCRIBED IN SCHEDULE A

The rates in Schedule A reflect typical costs for field installations of component types. These rates apply to each component type regardless of the exact configuration of the system.

The rates for property described in Schedule A must be used to determine the base cost for that property and no changes or adjustments to the rates are permissible.

The base cost for machinery & equipment described in Schedule A is determined as follows:

1) Select the component category (e.g. Tanks, Steel Bolted),
2) Select the specific component (e.g. Size, Type),
3) Apply the base rate for the specific component.

1.010 TANKS

1.010.100 Steel Bolted, Welded, or Pop Tanks–Above Ground

Size (m^3)	(bbl)	Diameter (m)	Height (m)	Base Rate ($)
8	50	2.36	1.83	**7 850**
14	90	2.41	3.05	**8 700**
16	100	2.90	2.44	**9 000**
33	210	3.05	4.57	**12 550**
48	300	3.66	4.57	**14 650**
64	400	3.66	6.10	**15 200**
79	500 (Low)	6.55	2.44	**18 050**
79	500 (High)	4.72	4.88	**17 100**
119	750	4.72	7.32	**19 900**
159	1 000 (Low)	9.07	2.44	**24 400**
159	1 000 (High)	6.55	4.88	**24 400**
238	1 500	6.55	7.32	**29 100**
318	2 000	9.07	4.88	**34 950**
397	2 500	9.07	6.10	**80 300**
477	3 000	9.07	7.32	**94 000**
636	4 000	10.52	7.32	**120 400**
795	5 000	11.79	7.32	**146 700**
1 590	10 000	16.76	7.32	**259 450**
3 179	20 000	20.42	9.75	**345 800**

Rates include: flat bottom, cone deck
flush-type cleanout door
thief hatch and vacuum relief
standard nozzles, manways and cleanouts
flanges, valves and piping
foundation bands and painting
installation

Note: 1 barrel (Oil, 42 US Gallons) = 0.158 987 m^3

1.010.200 Stairways–Walkways–Stiles

Stairway	**Base Rate ($ per m)**
4.3 m of rise or less	**395**
Over 4.3 m of rise	**370**

Walkways or platforms	**Base Rate ($ per m)**
1.2 m wide metal	**280**

Stiles	**Base Rate ($)**
Per stile over berm	**1 050**

Rates include: paint and installation

1.010.300 Steel Welded Underground Tanks

Volume (l)	**(gal.)**	**(bbl)**	**Base Rate ($)**
2 505	550	16	**7 550**
5 005	1 100	31	**7 900**
9 810	2 156	62	**13 400**
15 015	3 300	94	**13 950**
25 025	5 500	157	**23 150**
35 035	7 700	220	**24 800**
50 050	11 000	315	**37 650**

Rates include: excavation and backfill
hold downs and concrete
piping, flanges and valves
installation

1.010.400 Tanks–Insulation and Coatings

Insulation (mm)	Coating Type	Base Rate ($ per m^2)
	Epoxy internal coating	**45.50**
50.0	Fibreglass, c/w metal cladding	**76.50**
76.0	Fibreglass, c/w metal cladding	**89.50**
51.0 6.35	Urethane for fibreglass tanks c/w Diathon coating	**32.50**
25.0	Urethane Insulation, c/w sealer	**45.00**
38.0	Urethane Insulation, c/w sealer	**48.00**
50.0	Urethane Insulation, c/w sealer	**51.50**
63.0	Urethane Insulation, c/w sealer	**56.00**
76.0	Urethane Insulation, c/w sealer	**60.00**

Rates include: surface preparation
installation

Note: Use the following formula to find the area of tank to be covered:

Horizontal Tank:

$$\text{Area} = (2 \times 3.14 \times r^2) + (2 \times 3.14 \times r \times l)$$

Vertical Tank:

$$\text{Area} = (1 \times 3.14 \times r^2) + (2 \times 3.14 \times r \times h)$$

Vertical Tank Area = 1 end only and cylinder

where: r = radius
l = length
h = height

1.010.420 Steel Tanks–Fibreglass Insulation (50 mm)

Size (bbl)	Diameter X Height (m x m)	Base Rate ($ per 50 mm)
50	2.36 x 1.83	**1 350**
90	2.41 x 3.05	**2 100**
100	2.90 x 2.44	**2 200**
210	3.05 x 4.57	**3 900**
300	3.66 x 4.57	**4 800**
400	3.66 x 6.10	**6 150**
500(Low)	6.55 x 2.44	**6 400**
500(High)	4.72 x 4.88	**6 850**
750	4.72 x 7.32	**9 650**
1 000 (Low)	9.07 x 2.44	**10 250**
1 000 (High)	6.55 x 4.88	**10 250**
1 500	6.55 x 7.32	**14 100**
2 000	9.07 x 4.88	**15 550**
2 500	9.07 x 6.10	**18 250**
3 000	9.07 x 7.32	**20 900**
4 000	10.52 x 7.32	**25 150**
5 000	11.79 x 7.32	**29 100**
10 000	16.76 x 7.32	**46 350**
20 000	20.42 x 9.75	**72 850**

1.010.430 Steel Tanks–Fibreglass Insulation (76 mm)

Size (bbl)	Diameter X Height (m x m)	Base Rate ($ per 76 mm)
50	2.36 x 1.83	**1 600**
90	2.41 x 3.05	**2 450**
100	2.90 x 2.44	**2 600**
210	3.05 x 4.57	**4 550**
300	3.66 x 4.57	**5 650**
400	3.66 x 6.10	**7 200**
500(Low)	6.55 x 2.44	**7 500**
500(High)	4.72 x 4.88	**8 050**
750	4.72 x 7.32	**11 300**
1 000 (Low)	9.07 x 2.44	**12 000**
1 000 (High)	6.55 x 4.88	**12 000**
1 500	6.55 x 7.32	**16 500**
2 000	9.07 x 4.88	**18 200**
2 500	9.07 x 6.10	**21 350**
3 000	9.07 x 7.32	**24 450**
4 000	10.52 x 7.32	**29 400**
5 000	11.79 x 7.32	**34 000**
10 000	16.76 x 7.32	**54 200**
20 000	20.42 x 9.75	**85 250**

Note: Use the following formula to calculate the area covered by the tank:
Area = $(1 \times 3.14 \times r^2) + (2 \times 3.14 \times r \times h)$
Where: r = radius
h = height

1.010.500 Steel Tanks–Urethane Insulation (25 mm)

Size (bbl)	Diameter X Height (m x m)	Base Rate ($ per 25 mm)
50	2.36 x 1.83	**800**
90	2.41 x 3.05	**1 250**
100	2.90 x 2.44	**1 300**
210	3.05 x 4.57	**2 300**
300	3.66 x 4.57	**2 850**
400	3.66 x 6.10	**3 650**
500(Low)	6.55 x 2.44	**3 750**
500(High)	4.72 x 4.88	**4 050**
750	4.72 x 7.32	**5 650**
1 000 (Low)	9.07 x 2.44	**6 050**
1 000 (High)	6.55 x 4.88	**6 050**
1 500	6.55 x 7.32	**8 300**
2 000	9.07 x 4.88	**9 150**
2 500	9.07 x 6.10	**10 700**
3 000	9.07 x 7.32	**12 300**
4 000	10.52 x 7.32	**14 800**
5 000	11.79 x 7.32	**17 100**
10 000	16.76 x 7.32	**27 250**
20 000	20.42 x 9.75	**42 850**

1.010.510 Steel Tanks–Urethane Insulation (38 mm)

Size (bbl)	Diameter X Height (m x m)	Base Rate ($ per 38 mm)
50	2.36 x 1.83	**850**
90	2.41 x 3.05	**1 350**
100	2.90 x 2.44	**1 400**
210	3.05 x 4.57	**2 450**
300	3.66 x 4.57	**3 050**
400	3.66 x 6.10	**3 850**
500(Low)	6.55 x 2.44	**4 050**
500(High)	4.72 x 4.88	**4 300**
750	4.72 x 7.32	**6 050**
1 000 (Low)	9.07 x 2.44	**6 450**
1 000 (High)	6.55 x 4.88	**6 450**
1 500	6.55 x 7.32	**8 850**
2 000	9.07 x 4.88	**9 750**
2 500	9.07 x 6.10	**11 450**
3 000	9.07 x 7.32	**13 100**
4 000	10.52 x 7.32	**15 800**
5 000	11.79 x 7.32	**18 250**
10 000	16.76 x 7.32	**29 100**
20 000	20.42 x 9.75	**45 700**

1.010.520 Steel Tanks–Urethane Insulation (50 mm)

Size (bbl)	Diameter X Height (m x m)	Base Rate ($ per 50 mm)
50	2.36 x 1.83	**900**
90	2.41 x 3.05	**1 400**
100	2.90 x 2.44	**1 500**
210	3.05 x 4.57	**2 650**
300	3.66 x 4.57	**3 250**
400	3.66 x 6.10	**4 150**
500(Low)	6.55 x 2.44	**4 300**
500(High)	4.72 x 4.88	**4 650**
750	4.72 x 7.32	**6 500**
1 000 (Low)	9.07 x 2.44	**6 900**
1 000 (High)	6.55 x 4.88	**6 900**
1 500	6.55 x 7.32	**9 500**
2 000	9.07 x 4.88	**10 500**
2 500	9.07 x 6.10	**12 250**
3 000	9.07 x 7.32	**14 050**
4 000	10.52 x 7.32	**16 950**
5 000	11.79 x 7.32	**19 600**
10 000	16.76 x 7.32	**31 200**
20 000	20.42 x 9.75	**49 050**

Note: Use the following formula to calculate the area covered by the tank:
Area = $(1 \times 3.14 \times r^2) \div (2 \times 3.14 \times 4 \times h)$
where: r = radius
h = height

1.010.600 Fibreglass Tanks–Vertical

Size (m^3)	(bbl)	Base Rate ($)
14.0	90	**20 150**
33.0	210	**25 500**
48.0	300	**29 750**
64.0	400	**34 100**
80.0	500	**38 350**
119.0	750	**51 550**

1.010.620 Fibreglass Tanks–Underground

Size (m^3)	(bbl)	Base Rate ($)
2.3	14	**9 400**
4.6	29	**10 200**
7.9	50	**13 050**
16.0	100	**16 500**
32.0	200	**26 550**

Rates include: standard manway, nozzles and valves
reinforcement installation

1.010.640 Fibreglass Tanks–Insulation

Size (m^3)	(bbl)	Base Rate ($)
14.0	90	**900**
16.0	100	**950**
33.0	210	**1 650**
48.0	300	**2 050**
64.0	400	**2 600**
80.0	500	**2 750**
119.0	750	**4 100**

Rates include: 51.0 mm urethane with
6.35 mm Diathon coating
preparation and installation

1.010.700 Steel Pop Tanks–Rectangular

Size (m^3)	(bbl)	Base Rate ($)
8.0	50	**8 900**
16.0	100	**10 200**
33.0	210	**16 350**
64.0	400	**19 450**

Rates include: painting and steel skids

1.010.720 LPG Steel Tanks

Size (m^3)	(US gal.)	Base Rate ($)
1.9	500	**3 750**
3.8	1 000	**6 200**
5.7	1 500	**18 850**
8.0	2 000	**22 650**
19.0	5 000	**49 550**
34.0	9 100	**55 900**
45.0	12 000	**63 200**
68.0	18 000	**76 600**
114.0	30 000	**96 750**

Rates include: manway, piping and flanges
valves and instrumentation
foundation and installation

Note: one US gallon equals 3.8 litres

Steel ladder and Platform	Base Rate ($) each
Add	3 300

1.010.800 Steel Chemical Storage Tanks

Size (L)	(Imp. gal.)	Base Rate ($)
1 365	300	**1 550**
2 275	500	**1 700**
4 550	1 000	**2 650**

Rates include: painting and installation

1.010.820 Plastic Chemical Storage Tanks

Size (L)	(Imp. gal.)	Base Rate ($)
410	90	**1 650**
819	180	**1 800**
910	200	**1 850**
1 000	220	**1 900**
1 365	300	**2 050**
2 275	500	**2 300**
3 412	750	**2 950**
4 550	1 000	**3 150**
6 825	1 500	**4 150**

Rates include: piping, valves, stand, and straps
Installation

1.020 HEATERS, GAUGES, AND SWITCHES

1.020.100 Tank Heaters

Rating (kW)	(Btu)	Base Rate ($)
73 kW & smaller	250 000	**3 300**
147 kW	500 000	**3 750**

Rates include: flame arrestor
stack
burning equipment
installation

Note: 3412.14 Btu/h = 1 kW

1.020.200 Indirect Fired Line Heaters

Rating (kW)	(Btu/h)	Diameter (mm)	Length (m)	Base Rate ($)
73	250 000	610	2.3	**20 600**
147	500 000	660	3.5	**23 500**
220	750 000	762	4.1	**26 150**
293	1 000 000	914	4.4	**30 850**
440	1 500 000	1 118	5.6	**36 900**
586	2 000 000	1 219	6.6	**52 450**
879	3 000 000	1 524	7.5	**66 350**
1 172	4 000 000	1 829	8.4	**87 300**
1 465	5 000 000	2 134	8.7	**127 450**
1 758	6 000 000	2 337	8.7	**169 200**

Rates include: fire tube, burners and pilot
flame arrestor, stack and fuel gas manifold
fuel gas scrubber, ball value, PSV and pressure gauge
values, regulator, temperature controller
high temperature switch, thermometer and expansion drum
thief hatch, gauge glass and insulation
skids and installation

Note: 3412.14 Btu/h = 1 kW
Direct Heaters are considered obsolete

1.020.300 Tank Gauges

Type	Base Rate ($)
Varec 2500 automatic	**3 150**

Rates include: aluminium gauge head
guide piping, elbows,
brackets and anchor bar
installation

1.020.400 Level Switches

Type	Base Rate ($)
Roof Mount	**1 600**
Static Pressure Sensing	**1 400**

Rates include: electrical
tubing, values and flanges
installation

1.030 TREATERS

1.030.100 Vertical

Diameter (m)	(ft)	Height (m)	(ft)	Pressure (kPa)	(psi)	Base Rate ($)
1.22	4	6.1	20.0	345	50	**51 000**
1.22	4	8.4	27.5	345	50	**56 350**
1.83	6	6.1	20.0	345	50	**56 950**
1.83	6	8.4	27.5	345	50	**63 250**
2.44	8	6.1	20.0	345	50	**74 050**
2.44	8	8.4	27.5	345	50	**83 100**
3.05	10	6.1	20.0	345	50	**86 700**
3.05	10	8.4	27.5	345	50	**98 000**
1.22	4	6.1	20.0	517	75	**56 300**
1.22	4	8.4	27.5	517	75	**62 350**
1.83	6	6.1	20.0	517	75	**63 100**
1.83	6	8.4	27.5	517	75	**70 200**
2.44	8	6.1	20.0	517	75	**82 400**
2.44	8	8.4	27.5	517	75	**92 550**
3.05	10	6.1	20.0	517	75	**96 800**
3.05	10	8.4	27.5	517	75	**109 500**

Rates include: fire tube, flame arrestor, stack, anodes,
fuel gas system c/w scrubber, thermostats,
regulators and valves,
ladder, crowsnest water siphon,
thermometer, pressure gauge, gauge glass,
water outlet valve, oil outlet valve,
oil ,gas and water meters,
gas back pressure valve, relief valve,
insulation, skid, and installation

Note: 6.894757 pound force per square inch = 1 kPa

1.030.200 Mechanical–Horizontal

Diameter (m)	(ft)	Height (m)	(ft)	Pressure (kPa)	(psi)	Base Rate ($)
1.83	6	6.1	20	345	50	**113 950**
2.44	8	6.1	20	345	50	**126 950**
2.44	8	7.6	25	345	50	**140 900**
2.44	8	9.1	30	345	50	**188 650**
3.05	10	9.1	30	345	50	**202 050**
3.05	10	12.2	40	345	50	**218 650**
3.05	10	15.2	50	345	50	**233 550**
3.05	10	21.3	70	345	50	**303 100**
1.83	6	6.1	20	517	75	**126 050**
2.44	8	6.1	20	517	75	**139 050**
2.44	8	7.6	25	517	75	**146 950**
2.44	8	9.1	30	517	75	**200 750**
3.05	10	9.1	30	517	75	**214 150**
3.05	10	12.2	40	517	75	**230 750**
3.05	10	15.2	50	517	75	**257 750**
3.05	10	21.3	70	517	75	**327 300**

1.030.300 Electro Static/Dual Polarity–Horizontal

Diameter (m)	(ft)	Height (m)	(ft)	Pressure (kPa)	(psi)	Base Rate ($)
1.83	6	6.1	20	345	50	**134 250**
2.44	8	6.1	20	345	50	**147 300**
2.44	8	7.6	25	345	50	**161 250**
2.44	8	9.1	30	345	50	**208 950**
3.05	10	9.1	30	345	50	**228 450**
3.05	10	12.2	40	345	50	**245 050**
3.05	10	15.2	50	345	50	**263 200**
3.05	10	21.3	70	345	50	**332 750**
1.83	6	6.1	20	517	75	**146 350**
2.44	8	6.1	20	517	75	**159 400**
2.44	8	7.6	25	517	75	**167 300**
2.44	8	9.1	30	517	75	**221 050**
3.05	10	9.1	30	517	75	**240 550**
3.05	10	12.2	40	517	75	**257 150**
3.05	10	15.2	50	517	75	**287 400**
3.05	10	21.3	70	517	75	**356 950**

Rates include: fire tube, flame arrestor, stack, anodes,
fuel gas system c/w scrubber, thermostats,
regulators and valves
ladder, crowsnest water siphon,
thermometer, pressure gauge, gauge glass,
water outlet valve, oil outlet valve,
oil ,gas and water meters,
gas back pressure valve, relief valve,
insulation, skid, and installation

Note: 6.894757 pound force per square inch = 1 kPa

1.040 SEPARATORS

1.040.100 Vertical 2-Phase

862–1896 kPa (125 psi - 275 psi)				
Diameter (mm)	**(in.)**	**Height (m)**	**(ft)**	**Base Rate ($)**
300	12	1.5	5.0	**27 500**
400	16	1.5	5.0	**28 150**
500	20	1.5	5.0	**28 750**
600	24	1.5	5.0	**34 200**
750	30	1.5	5.0	**36 250**
900	36	1.5	5.0	**38 300**
400	16	2.3	7.5	**28 950**
500	20	2.3	7.5	**29 600**
600	24	2.3	7.5	**35 200**
750	30	2.3	7.5	**37 350**
900	36	2.3	7.5	**39 550**

5102 kPa (740 psi)				
Diameter (mm)	**(in.)**	**Height (m)**	**(ft)**	**Base Rate ($)**
400	16	1.5	5.0	**28 750**
500	20	1.5	5.0	**29 950**
600	24	1.5	5.0	**35 400**
750	30	1.5	5.0	**37 600**

10204 kPa (1480 psi)				
Diameter (mm)	**(in.)**	**Height (m)**	**(ft)**	**Base Rate ($)**
400	16	1.5	5.0	**29 200**
500	20	1.5	5.0	**30 800**
600	24	1.5	5.0	**37 100**
750	30	1.5	5.0	**39 550**
400	16	2.3	7.5	**29 950**
500	20	2.3	7.5	**31 750**
600	24	2.3	7.5	**37 850**
750	30	2.3	7.5	**40 400**
900	36	2.3	7.5	**42 900**

1.040.200 Vertical 3-Phase

862–1896 kPa (125 psi – 275 psi)				
Diameter (mm)	**(in.)**	**Height (m)**	**(ft)**	**Base Rate ($)**
400	16	2.3	7.5	**32 700**
500	20	2.3	7.5	**33 300**
600	24	2.3	7.5	**39 750**
750	30	2.3	7.5	**41 900**
900	36	2.3	7.5	**44 100**
1 200	48	2.3	7.5	**49 700**
500	20	3.0	10.0	**34 400**
600	24	3.0	10.0	**41 050**
900	36	3.0	10.0	**45 650**
1 200	48	3.0	10.0	**51 400**
1 500	60	3.0	10.0	**56 600**

10204 kPa (1480 psi)				
Diameter (mm)	**(in.)**	**Height (m)**	**(ft)**	**Base Rate ($)**
400	16	2.3	7.5	**33 650**
500	20	2.3	7.5	**35 500**
600	24	2.3	7.5	**42 400**
900	36	2.3	7.5	**47 450**
1 200	48	2.3	7.5	**75 000**
400	16	3.0	10.0	**35 750**
600	24	3.0	10.0	**45 050**
900	36	3.0	10.0	**50 750**
1 200	48	3.0	10.0	**80 950**

1.040.300 Horizontal 2-Phase

862–1896 kPa (125 psi - 275 psi)				
Diameter (mm)	**(in.)**	**Height (m)**	**(ft)**	**Base Rate ($)**
600	24	3.0	10.0	**25 650**
750	30	3.0	10.0	**27 800**
900	36	3.0	10.0	**29 900**

10204 kPa (1480 psi)				
Diameter (mm)	**(in.)**	**Height (m)**	**(ft)**	**Base Rate ($)**
500	20	3.0	10.0	**25 700**
600	24	3.0	10.0	**29 300**
750	30	3.0	10.0	**32 000**
900	36	3.0	10.0	**34 700**

1.040.400 Horizontal 3-Phase

862–1896 kPa (125 psi - 275 psi)				
Diameter (mm)	(in.)	Height (m)	(ft)	Base Rate ($)
600	24	3.0	10.0	**32 600**
750	30	3.0	10.0	**34 750**
900	36	3.0	10.0	**36 850**

10204 kPa (1480 psi)				
Diameter (mm)	(in.)	Height (m)	(ft)	Base Rate ($)
600	24	3.0	10.0	**36 250**
750	30	3.0	10.0	**39 000**
900	36	3.0	10.0	**41 700**

Rates include: liquid dump valves, block valves and fittings
level controllers and high level switch
gas valve pipe and fittings
PSV, pressure gauge and gauge glass
water boot (on 3 Phase horizontal)
senior orifice fitting and meter run
flow recorder
skids and saddles
thermometer and installation

1.040.500 Vertical Centrifugal/Recycling

10204 kPa (1480 psi^2)				
Diameter (mm)	(in.)	Height (m)	(ft)	Base Rate ($)
150	6	1.5	5.0	**30 850**
200	8	1.5	5.0	**36 700**
300	12	1.5	5.0	**41 900**
400	16	2.6	8.5	**51 850**
600	24	3.7	12.0	**90 300**
800	32	4.6	15.0	**114 350**

Rates include: gas back pressure value and controller
flow recorder and valve manifold
senior orifice fitting and meter run
pressure relief valve
water level controller and gauge
water dump valve and flow meter
temperature and pressure gauges
gas regulators, filter and scrubber
ball valves piping and flanges
installation

Note: Use the following table to cross reference ANSI ratings to working pressure:

WORKING PRESSURE
Service Temperature
-28.9 to 37.8C (-20 to 100F)

ANSI	kPa	psi
150	1 896	275
300	5 102	740
600	10 204	1 480
900	14 893	2 160
1 500	24 821	3 600
2 500	41 369	6 000

Note: Pound (force) per square inch x 6.894 757 = kPa

1.040.600 Environmental Low Stage Separator Tank Units

Size (bbl)	Base Rate ($)
50	**46 750**
100	**71 550**

Rates include: sand frac flow back vessel
piping and frac tees
75 or 100 mm meter run
dry flow meter
sand diffuser
ladder, hatches and pad
installation

1.040.700 Pre-Fabricated Environmental Battery Units

Low pressure Unit (48kPa)	Lines & Meter Runs (mm)	Base Rate ($)
Standard Unit unheated	50	**42 600**
Standard Unit unheated	75	**44 250**
Heated Unit	50	**47 550**
Heated Unit	75	**49 200**
Treating Unit	50	**60 750**
Treating Unit	75	**62 400**
Companion Storage Tank	**add** each	**25 400**

Standard Unit
Rates include: 500 barrel used railway oil tank car horizontal separator
high level and high pressure shut off valves
dry flow recorders and fluid level indicators
flow lines, meter, flare lines
100mm x12.2m flare stack, ignition and arrestor
steel skids and saddles
weir plank pad and installation

Heated Unit

Rates include: 250mm fire tube, burner and pilot light
500 barrel used railway oil tank car horizontal separator
high level and high pressure shut off valves
dry flow recorders and fluid level indicators
flow lines, meter, flare lines
100mm x12.2m flare stack, ignition and arrestor
steel skids and saddles
weir plank pad and installation

Treating Unit

Rates include: degasers and down comers
spreader pan and baffle plates
individual fluid level gauges for oil, gas and water
500 barrel used railway oil tank car horizontal separator
high level and high pressure shut off valves
dry flow recorders and fluid level indicators
flow lines, meter, flare lines
100mm x12.2m flare stack, ignition and arrestor
steel skids and saddles
weir plank pad and installation

Companion Storage Tank

Rates include: extension of site work, weir, pad and installation
steel skids and saddles
connecting piping to main unit
meters, valves and indicators

High Pressure Unit (345kPa)	Lines & Meter Runs (mm)	Base Rate ($)
Standard Unit Unheated	75	**110 050**

Rates include: 500 barrel welded tank, horizontal separator
high level and high pressure shut off valves
dry flow recorders and fluid level indicators
flow lines, meter, flare lines
100mm x12.2m flare stack, ignition and arrestor
steel skids and saddles
weir plank pad and installation

1.050 FUEL GAS SCRUBBERS

	Base Rate ($)
All Sizes	**2 500**

Rates include: block valve, shutoff valve
relief valve and pressure gauge
piping and high level switch
installation

1.060 FREE WATER KNOCKOUTS

Diameter (m)	(ft)	Length (m)	(ft)	Base Rate ($)
1.83	6.0	3.0	10.0	**105 450**
1.83	6.0	4.6	15.0	**111 500**
2.44	8.0	4.6	15.0	**123 600**
3.05	10.0	6.1	20.0	**150 150**
3.05	10.0	9.1	30.0	**162 250**
3.05	10.0	12.2	40.0	**237 800**

Rates include: dump valve
block valve
pipe fittings and flanges
level controllers
gas back pressure valve
gauge glass and pressure gauge
PSV and thermometer
skids and installation

1.070 GAS BOOTS

Diameter (mm)	(in.)	Base Rate ($)
600	24	**28 700**
750	30	**31 500**
900	36	**33 500**
1 050	42	**38 050**
1 200	48	**40 600**
1 500	60	**45 950**

Rates include: guy wires
pressure gauge, PSV and block valve
piping, flanges and fittings
steel caged ladder and top platform
foundation and installation

Note: Average heights used are 9.1 to 12.2m (30 to 40 feet)

1.080 FLARE SYSTEMS

1.080.100 Vent Stacks 100 mm (4 in.) Stack

Height (m)	(ft)	Base Rate ($)
9.1	30	**11 050**
12.2	40	**11 250**
15.2	50	**11 650**
18.3	60	**15 250**

1.080.120 Vent Stacks 150 mm (6 in.) Stack

Height (m)	(ft)	Base Rate ($)
9.1	30	**14 250**
12.2	40	**14 500**
15.2	50	**14 850**
18.3	60	**16 200**

1.080.140 Vent Stacks 203 mm (8 in.) Stack

Height (m)	(ft)	Base Rate ($)
9.1	30	**17 500**
12.2	40	**17 750**
15.2	50	**18 100**
18.3	60	**20 750**

1.080.200 Flare Stacks Pilot & Shottube 100 mm (4 in.) Stack

Height (m)	(ft)	Base Rate ($)
9.1	30	**13 200**
12.2	40	**13 450**
15.2	50	**13 950**
18.3	60	**17 700**

1.080.220 Flare Stacks Pilot & Shottube 150 mm (6 in.) Stack

Height (m)	(ft)	Base Rate ($)
9.1	30	**16 450**
12.2	40	**16 650**
15.2	50	**17 150**
18.3	60	**19 700**

1.080.240 Flare Stacks Pilot & Shottube 200 mm (8 in.) Stack

Height (m)	(ft)	Base Rate ($)
9.1	30	**19 650**
12.2	40	**19 900**
15.2	50	**20 650**
18.3	60	**23 150**

1.080.300 Flare Stacks–Manual or Automatic or Solar Igniter 100 mm (4 in.) Stack

Height (m)	(ft)	Base Rate ($)
9.1	30	**15 300**
12.2	40	**15 950**
15.2	50	**16 550**
18.3	60	**20 500**

1.080.320 Flare Stacks–Manual or Automatic or Solar Igniter 150 mm (6 in.) Stack

Height (m)	(ft)	Base Rate ($)
9.1	30	**18 550**
12.2	40	**19 150**
15.2	50	**19 750**
18.3	60	**22 550**

1.080.340 Flare Stacks–Manual or Automatic or Solar Igniter 200 mm (8 in.) Stack

Height (m)	(ft)	Base Rate ($)
9.1	30	**21 800**
12.1	40	**22 400**
15.2	50	**23 350**
18.2	60	**26 000**

Rates include: flare tips
base and foundation
piping and flange
regulator, valve and gauge
retractable assembly
electric service, flame failure switch
guy wires and installation

1.080.500 Incinerators

Height (m)	(ft)	Base Rate ($)
14.3	47	**87 350**
15.2	50	**90 150**
18.3	60	**99 350**
21.3	70	**108 500**
24.4	80	**117 700**
27.4	90	**126 900**
28.6	94	**130 600**

Rates include: stack, guy wires and incinerator
piping and flange and electric ignition and switch
base and installation

1.090 COMPRESSORS

1.090.100 Vapour Recovery –Blower

Size (kW)	(hp)	Base Rate ($)
1.5	2	**12 500**
3.7	5	**19 750**
7.5	10	**29 600**

1.090.200 Vapour Recovery–Single Stage

Size (kW)	(hp)	Base Rate ($)
3.7	5	**40 000**
11.0	15	**50 200**
18.7	25	**68 050**
37.3	50	**82 700**
74.6	100	**119 900**
111.9	150	**160 550**

1.090.300 Vapour Recovery–Two Stage

Size (kW)	(hp)	Base Rate ($)
11.0	15	**76 050**
18.7	25	**88 650**
37.3	50	**120 850**
56.0	75	**156 700**
74.6	100	**192 750**
93.3	125	**202 600**
111.9	150	**212 150**

Rates include: compressor package
inlet separator
piping, flanges and fittings
controls
lube system
skids and installation

Note: Horsepower (electric) x 0.746 = kW

1.090.400 Gas Compressors–Two Stage Electric Drive – Packaged

Size (kW)	(hp)	Base Rate ($)
14.9	20	**95 800**
37.3	50	**96 300**
44.8	60	**152 550**
74.6	100	**157 700**
93.3	125	**182 700**
149.2	200	**195 100**
223.8	300	**263 700**
additional stages **each add**		**30 250**

Rates include: compressor package
discharge air exchanger each stage
suction scrubber
controls, control panel
electrical and switches
electric motor and drive
piping, flanges and fittings
skids and installation

1.090.500 Gas Compressors–Two Stage Gas Drive–Packaged

Size (kW)	(hp)	Base Rate ($)
14.9	20	**112 700**
37.3	50	**112 700**
44.8	60	**179 450**
74.6	100	**189 050**
93.3	125	**212 550**
149.2	200	**244 850**
223.8	300	**331 000**
additional stages **each add**		**30 250**

Rates include: compressor package
discharge air exchanger each stage
suction scrubber
controls, control panel and switches
gas motor and drive
piping, flanges and fittings
skids and installation

1.100 PUMPS

1.100.100 Vertical Turbine Pumps

Inlet (mm)	(in.)	Motor (kW)	(hp)	Base Rate ($)
100	4	1.5	2.0	**7 600**
100	4	2.2	3.0	**7 900**
100	4	3.7	5.0	**8 750**
100	4	5.6	7.5	**9 900**
150	6	2.2	3.0	**8 150**
150	6	3.7	5.0	**9 300**
150	6	5.6	7.5	**10 300**
150	6	7.5	10.0	**10 700**
150	6	11.2	15.0	**12 050**
150	6	14.9	20.0	**13 400**
150	6	18.7	25.0	**13 900**
150	6	22.4	30.0	**15 250**

Rates include: pump and base plate
explosion proof electric motor and drive assembly
piping, couplings, flanges and valves
electrical service and motor switch
installation

1.100.200 Centrifugal Pumps–End Suction

Inlet (mm)	(in.)	Motor (kW)	(hp)	Base Rate ($)
38	1.5	1.5	2.0	**6 050**
38	1.5	2.2	3.0	**6 200**
38	1.5	3.7	5.0	**6 300**
75	3.0	1.5	2.0	**6 200**
75	3.0	2.2	3.0	**6 350**
75	3.0	3.7	5.0	**6 450**
100	4.0	2.2	3.0	**8 450**
100	4.0	3.7	5.0	**8 600**
100	4.0	5.6	7.5	**8 850**
100	4.0	7.5	10.0	**9 500**
100	4.0	11.2	15.0	**10 300**

Rates include: pumps and base plates
explosion proof motor and drive assembly
piping, couplings, flanges and valves
electrical service and motor switch
installation

1.100.300 Centrifugal Pumps–Vertical Inline

Inlet (mm)	(in.)	Motor (kW)	(hp)	Base Rate ($)
50	2.0	1.5	2.0	**6 650**
50	2.0	2.2	3.0	**6 800**
50	2.0	3.7	5.0	**6 900**
75	3.0	1.5	2.0	**6 900**
75	3.0	2.2	3.0	**7 050**
75	3.0	3.7	5.0	**7 150**
100	4.0	2.2	3.0	**9 500**
100	4.0	3.7	5.0	**9 650**
100	4.0	5.6	7.5	**9 900**
100	4.0	7.5	10.0	**10 600**
100	4.0	11.2	15.0	**11 600**

Rates include: pumps and base plates
explosion proof motor and drive assembly
piping, couplings, flanges and valves
electrical service and motor switch
installation

1.100.400 Rotary Gear Pumps

Inlet (mm)	(in.)	Motor (kW)	(hp)	Base Rate ($)
38	1.5	1.5	2.0	**5 250**
38	1.5	2.2	3.0	**5 400**
38	1.5	3.7	5.0	**5 500**
63	2.5	1.5	2.0	**7 250**
63	2.5	2.2	3.0	**7 400**
63	2.5	3.7	5.0	**7 500**
75	3.0	7.5	10.0	**8 250**
75	3.0	11.2	15.0	**8 800**

Rates include: pump, base plates and mechanical seal
explosion proof motor and drive assembly
piping, couplings and flanges
valves and PSV
electrical service and motor switch
paint and installation

1.100.500 Progressive Cavity Pumps

Inlet (mm)	(in.)	Motor (kW)	(hp)	Base Rate ($)
50	2.0	1.5	2.0	**8 250**
63	2.5	2.2	3.0	**9 150**
75	3.0	2.2	3.0	**10 000**
100	4.0	3.7	5.0	**14 200**
150	6.0	5.6	7.5	**15 900**
150	6.0	7.5	10.0	**16 150**
150	6.0	11.2	15.0	**16 700**

Rates include: pump, base plates and mechanical seal
steel rotor and stator, pin joints
explosion proof motor, drive assembly and guard
piping, couplings and flanges
valves and PSV
electrical service and motor switch
paint and installation

1.100.600 Piston / Plunger Pumps

Type	Motor (kW)	(hp)	Base Rate ($)
Simplex	3.7	5.0	**8 400**
Duplex	7.5	10.0	**11 950**
Triplex	11.2	15.0	**12 750**
Triplex	22.4	30.0	**22 250**
Triplex	37.3	50.0	**26 150**
Triplex	74.6	100.0	**40 900**
Quintuplex	22.4	30.0	**24 550**
Quintuplex	37.3	50.0	**29 750**
Quintuplex	56.0	75.0	**41 600**
Quintuplex	74.6	100.0	**49 300**
Quintuplex	186.5	250.0	**124 700**

Rates include: pump, base plates and mechanical seal
explosion proof motor, drive assembly and guard
piping, couplings and flanges
valves and PSV
electrical service and motor switch
paint and installation
equipment skids for 30 hp and larger

1.100.700 Waterflood Pumps

Type	Motor (kW)	(hp)	Base Rate ($)
Triplex	22.4	30	**29 950**
Triplex	44.8	60	**36 000**
Triplex	74.6	100	**56 200**
Triplex	123.1	165	**79 250**
Triplex	149.2	200	**91 400**
Triplex	279.8	375	**231 500**
Quintuplex	186.5	250	**122 150**
Quintuplex	223.8	300	**146 800**
Quintuplex	373.0	500	**275 950**
Quintuplex	466.3	625	**298 850**

Rates include: pump, base plates and mechanical seal
explosion proof motor, drive assembly and guard
piping, couplings and flanges
valves and PSV
electrical service and motor switch
paint and installation
equipment skids for 30 hp and larger

Note: Horsepower (electric) x 0.746 = 1 kW

1.110 AIR COMPRESSORS

1.110.100 Utility Air Compressors

Size (kW)	(hp)	Base Rate ($)
1.5	2.0	**4 950**
3.7	5.0	**5 550**
7.5	10.0	**7 350**
11.2	15.0	**8 000**

Rates include: reciprocating compressor
lubricated, 2 stage
air receiver and motor
electrical and switch
piping, flange and installation

1.110.200 Instrument Air Compressors–Reciprocating

Size (kW)	(hp)	Base Rate ($)
3.7	5.0	**10 050**
7.5	10.0	**12 150**
11.2	15.0	**14 900**

Rates include: reciprocating compressor
air receiver and electric motor
electrical and switch
after cooler, air dryer package
piping, flange and installation

1.110.300 Instrument Air Compressors–Rotary Screw

Size (kW)	(hp)	Base Rate ($)
11.2	15.0	**17 950**
18.7	25.0	**22 900**
37.3	50.0	**34 100**
74.6	100.0	**57 300**

Rates include: lubricated oil injection compressor
receiver and electric motor
electrical and switch
oil separator with pump
after cooler, air dryer package
piping, flange and installation

1.120 CHEMICAL INJECTORS

1.120.100 Electric Drive

Single Head–6 mm			
Motor (kW)	**(hp)**	**Phases**	**Base Rate ($)**
0.19	0.25	1	**2 200**
0.19	0.25	3	**3 400**
0.37	0.50	1	**2 300**
0.37	0.50	3	**3 500**

Two Heads–6 mm			
Motor (kW)	**(hp)**	**Phases**	**Base Rate ($)**
0.19	0.25	1	**2 450**
0.19	0.25	3	**3 600**
0.37	0.50	1	**2 500**
0.37	0.50	3	**3 700**

Rates include: pump and base
electric motor and service
tubing
installation

1.120.200 Air/Gas Drivers

Plunger Size (mm)	(in.)	Base Rate ($)
6	0.25	**2 800**
12	0.50	**2 800**
19	0.75	**2 950**
25	1.00	**3 000**
31	1.25	**3 400**

Rates include: pump and base
tubing, couplings
installation

1.120.300 Oscillamatic

Size	Base Rate ($)
All sizes	**1 900**

1.130 CONTROL VALVES

1.130.100 Emergency Shutdown Valves (ESD)

Type	Size (mm)	(in.)	Base Rate ($)
WKM Ball Valve	60	2	**2 950**
	89	3	**4 200**
	114	4	**6 700**
	168	6	**11 200**

Rates include: valve and actuator
high/low pressure pilot switch
flanges and tubing
installation

1.130.200 2-Way Pneumatic Valves

Valve size (mm)	(in.)	ANSI size	Actuator size	Base Rate ($)
25	1.0	Level	Control Valve	**1 900**
25	1.0	NPT	30	**3 300**
25	1.0	300	30	**3 750**
25	1.0	600	30	**3 800**
38	1.5	NPT	34	**3 950**
38	1.5	300	34	**4 450**
38	1.5	600	34	**4 600**
50	2.0	300	40	**5 050**
50	2.0	600	45	**5 300**
75	3.0	300	45	**6 950**
75	3.0	600	45	**7 000**
100	4.0	300	45	**8 700**
100	4.0	600	45	**8 950**
150	6.0	300	70	**15 150**
150	6.0	600	70	**15 800**

Rates include: valve and actuator
level controller and pilot switch
flanges and tubing
installation

Note: 3–Way Pneumatic Valves are considered obsolete

2–Way Electric - valve actuation	**add**	**170**
3–Way Electric - valve actuation	**add**	**280**

1.130.300 Intermitter–Time Cycle Controller

Size (mm)	Base Rate ($)
51	**4 440**
76	**5 480**
102	**6 620**
152	**10 120**

1.140 CHOKES

1.140.100 Wellhead/Manifolds–Willis Manual

Size (mm)	(in.)	Model	Base Rate ($)
33	1	M-1A	**1 200**
60	2	M-2	**2 450**
89	3	M-3	**5 350**
114	4	M-4	**5 800**

Rates include: installation

1.140.200 Wellhead/Manifolds–Master Flo Manual

Size (mm)	(in.)	Model	Base Rate ($)
33	1	P-1	**1 800**
60	2	P-2	**2 450**
89	3	P-3	**4 550**
114	4	P-4	**13 750**
168	6	P-6	**29 350**

Rates include: installation

1.140.300 Wellhead/Manifolds–Willis Pneumatic

Size (mm)	(in.)	Model	Base Rate ($)
33	1	M-1A	**3 200**
60	2	PA-2	**4 450**
89	3	M-3	**8 150**
114	4	M-4	**8 900**
Pressure		**add**	**2 120**

Rates include: valve and actuator
tubing and flanges
installation

1.140.400 Wellhead/Manifolds–Master Flo Pneumatic

Size (mm)	(in.)	Model	Base Rate ($)
33	1	P-1	**3 300**
60	2	P-2	**4 350**
89	3	P-3	**8 750**
114	4	P-4	**19 150**
168	6	P-6	**34 700**
Pressure		**Add**	**2 120**

Rates include: valve and actuator
tubing and flanges
installation

1.150 ORIFICE FITTING AND METER RUNS

1.150.100 Senior

Size (mm)	(in.)	Base Rate ($)
60	2	**4 750**
89	3	**5 200**
114	4	**5 950**
168	6	**7 450**
219	8	**10 250**
273	10	**13 000**

Rates include: orifice fittings, plate and holder
meter run and flanges
tubes and couplings
installation

1.150.200 Simplex

Size (mm)	(in.)	Base Rate ($)
60	2	**1 700**
89	3	**2 000**
114	4	**2 600**
168	6	**3 650**
219	8	**6 200**
273	10	**8 850**

Rates include: orifice fittings and plate
meter run and flanges
plate holder
tubes and couplings
installation

1.160 METERING AND ANALYSIS

1.160.100 Mechanical Liquid Meters

Type	Size (mm)	(in.)	Base Rate ($)
Barton FL 10	33	1.0	**1 550**
Barton Flotrac 306	33	1.0	**1 050**
Barton Flotrac 380	33	1.0	**1 050**
Floco F-2500	33	1.0	**1 750**
Floco 382 NPT	60	2.0	**5 250**
Floco 382 600 ANSI	60	2.0	**6 950**
Floco 383 NPT	89	3.0	**5 250**
Floco 383 600 ANSI	89	3.0	**7 650**
Automatic Sampler–sweet service **add**			**1 260**
Automatic Sampler–sour service **add**			**1 410**

Rates include: valves
pipe and fittings
installation

Note: The above meters are positive displacement meters for the measurement of brine, production water and oil production.
Model FL 10 is a flow meter.

1.160.200 Mechanical Gas Meters

Type	Size (mm)	(in.)	Base Rate ($)
Dresser Roots	48	1.5	**2 000**
Dresser Roots	60	2.0	**2 450**

Rates include: pipe and fittings
Installation

1.160.300 Liquid Turbine Meters

Type	Size (mm)	(in.)	Base Rate ($)
Smith Watchman	27	0.75	**1 950**
Smith Watchman	33	1.00	**2 200**
Smith Guardsman	48	1.50	**3 950**
Smith Guardsman	60	2.00	**3 950**
Smith Guardsman	89	3.00	**4 750**
Halliburton	10-51	0.38-2.00	**1 000**
Halliburton	76	3.00	**2 150**
Halliburton	102	4.00	**2 900**

Rates include: pipe and fittings
electrical
installation

1.160.400 Totalizers and Analyzers

Type	Base Rate ($)
CMOS CTC–61 Totalizer	**4 350**
Halliburton LO–11 Totalizer	**1 100**
Halliburton MC–11 Analyzer	**1 250**
Halliburton Net Oil Analyzer	**4 900**

Rates include: remote panel mounted
installation

Note: Totalizers are used with turbine meters.
Analyzers are used a probe to measure water in an oil stream

1.160.500 Capacitance Probes

Size (mm)	(in.)	Base Rate ($)
60	2	**3 650**
89	3	**4 950**
114	4	**5 700**

Rates include: probe and electric cable
Installation

1.160.600 Chart Recorders

Type	Base Rate ($)
2 Pen Circular–6900 kPa element	**3 100**
3 Pen Circular–6900 kPa element	**3 650**

Rates include: tubing, valves and manifold
pressure element
temperature element
spring chart drive
installation

1.160.700 Transmitters

Type	Base Rate ($)
Differential Pressure Flow	**2 250**
Pressure	**1 650**
Temperature	**1 100**

Rates include: electrical
installation

Note: Rates are for Barton, Rosemount or Foxboro types

1.170 PRODUCTION MANIFOLDS

1.170.100 Manual–Per Well

Size (mm)	(in.)	Base Rate ($)
60	2	**8 000**
89	3	**10 400**
114	4	**12 000**
168	6	**16 000**

Rates include: piping and fittings to headers per well
multiple valves per well
inlet, test, pigging and group headers per well
installation

Note: To determine the total cost of a multiwell manual manifold, multiply the cost per well (above) by the number of wells entering the manifold.

1.170.200 Rotary Selector Valve

Type	Base Rate ($)
Rotary Selector Valve	**6 150**
60 mm (2 in.) Inlets–per well, **add**	**1 900**
Electric auto–actuator **add**	**3 750**

Rates include: piping and fittings to rotary valve–per well
piping from rotary to test header–per well
valves–per well
installation

Note: To determine the total cost of a rotary selector manifold:

inlet manifold cost per well X number of wells entering the rotary valve

Add this cost to the cost of a rotary selector valve and add the cost of an auto–actuator if found.

Example: Rotary Valve Manifold–5 Wells
5 well inlet manifolds @ $1 900 = $9 500
1 Rotary Selector Valve = $6 150
1 Electric auto– actuator = $3 750
Total Manifold Cost = $19 400

1.180 PIGGING EQUIPMENT

1.180.100 Pig Launcher/Receiver Traps

Size (mm)	(in.)	Base Rate ($)
60	2	**5 000**
89	3	**5 200**
114	4	**6 650**
168	6	**12 100**
219	8	**13 150**

Rates include: inlet, outlet and bypass valves
bleed valve and bypass
piping and fittings
structural support
installation

1.180.200 Pig Entry Tees

Size (mm)	(in.)	Base Rate ($)
60	2	**2 150**
89	3	**2 250**
114	4	**2 550**

Rates include: block valves each side
bleed valve
installation

1.180.300 Pig Ball Valves–Manual Injectors

Size (mm)	(in.)	Base Rate ($)
60	2	**2 650**
89	3	**3 250**
114	4	**5 450**
168	6	**12 700**

Rates include: bleed valve
Installation

1.190 ELECTRICAL SERVICES

1.190.100 General Service Entrance on the Site

	Base Rate ($)
Single Phase Service, 120/240V, 101A to 200A*	**2 780**
Three Phase Service, 480V, 201A to 400A*	**7 820**
Three Phase Service, 480V, 401A to 800A*	**14 850**

Rates include: circuit panel, main disconnect,
branch circuit breakers, splitter,
disconnects and grounding trenching, cable, miscellaneous installation

*Does not include line up to and including the meter.

A Sub-Station Transformer is required to step–down a 480 Volt service to circuits of 460 Volt 3 Phase for motors and circuits of Single Phase 120/208 Volts for buildings, lights, etc.

A Sub-Station Transformer may be located inside a building or at an exterior plywood shelter and are found in association with electrical vaults, panels and switching gear.

1.190.400 Thermo–Electric Generators

Unit	Base Rate ($)
Less than 40W	**5 200**
over 40W	**9 750**

1.190.500 Remote System Radio Towers

Self–Supporting Height (m)	(ft)	Base Rate ($)
8.5	28	**1 550**
11.0	36	**2 050**
13.4	44	**2 550**
16.5	54	**3 050**
20.7	68	**3 500**
Radio Antennas–building mounted antenna		**420**

1.190.600 Fire and Gas Detection Systems

Unit	Base Rate ($)
Fire detection controller	**4 500**
Fire detector heads **add** each	**2 000**
Gas detection controller	**2 200**
Gas detector heads **add** each	**1 250**
Horn	**350**
Warning lights **add** each	**500**

1.230 DEHYDRATORS

1.230.100 Calcium Chloride Dryers

Diameter (mm)	(in.)	Height (m)	(ft)	Base Rate ($)
300	12	8.2	27	**12 850**
400	16	8.2	27	**15 550**
500	20	8.2	27	**17 250**
600	24	8.2	27	**22 000**
750	30	8.2	27	**25 550**
Pellet loading arm assembly **add**				**2 780**
Meter run and dry flow recorder **add**				**As found**

Rates include: vessel with integral scrubber
calcium chloride pellets
600 mm (24 in.) bed of glass beads
scrubber heating coil
dump valve, piping and flanges
fuel gas scrubber with controls
installation

1.230.200 Glycol Dehydrator Package - 2 Phase

Diameter (mm)	(in.)	Height (m)	(ft)	Base Rate ($)
300	12	4.3	14	**50 400**
400	16	4.3	14	**57 200**
500	20	4.3	14	**67 750**
600	24	4.3	14	**73 350**
750	30	4.3	14	**79 400**
Meter run and dry flow recorder **add**				**As found**

Rates include: 4 tray vessel and 2 phase integral scrubber
glycol regenerator including reboiler
glycol/glycol exchanger
fire tube, flame arrestor, burner and pilot assembly
fuel gas scrubber and control package
standard dehydrator instrument package
glycol pump, piping, fittings, tubing and valves
process piping, controllers, gauges and glass
installation

1.230.300 Glycol Dehydrator Package Options

The following costs should be added to the glycol dehydrator rates found under Sections 1.230.200

ADDITIONAL TRAYS

Vessel Diameter (mm)	(in.)	Rate/Tray ($)
300	12	**580**
400	16	**810**
500	20	**990**
600	24	**1 090**
750	30	**1 820**

Note: Each additional 450 mm (18 in.) of vessel height above 4.3 m (14 ft.) is assumed to contain one tray. Vessel heights are measured from seam to seam.

THIRD PHASE ADDITION

Vessel Diameter (mm)	(in.)	Rate/Tray ($)
300	12	**3 050**
400	16	**3 150**
500	20	**3 450**
600	24	**3 750**
750	30	**4 100**

Note: For a third phase, the above rates are added to the scrubber and controls.

STANDBY GLYCOL PUMP ADDITION

Vessel Diameter (mm)	(in.)	Rate ($)
300	12	**4 100**
400	16	**4 100**
500	20	**4 900**
600	24	**4 900**
750	30	**6 650**

Note: For a standby glycol pump complete with piping and valves, add the above rates.

1.240 FILTERS

1.240.100 Peco Liquid Filters

Diameter (mm)	(in.)	Height (mm)	(in.)	Base Rate ($)
168	6.6	787	31	**1 800**
168	6.6	1 168	46	**1 900**
219	8.6	813	32	**2 150**
219	8.6	1 422	56	**2 350**

Rates include: block valve and bypass valves
drain valve
piping and fittings
installation

1.240.200 Peco Gas Filter Separations

Diameter (mm)	(in.)	Height (mm)	(in.)	Base Rate ($)
168	6.6	1 391	55	**4 450**
168	6.6	1 772	70	**4 600**
168	6.6	2 002	79	**4 750**
219	8.6	2 178	86	**6 900**

Rates include: block valves, bypass valve
drain valve
piping and fittings
installation

1.240.300 Peco Dry Gas Filters

Diameter (mm)	(in.)	Height (mm)	(in.)	Base Rate ($)
168	6.6	660	26	**3 500**
168	6.6	1 041	41	**3 700**
168	6.6	1 270	50	**3 950**

Rates include: block valves, bypass valve
drain valve
piping and fittings
installation

Note: No instrumental or PSVs have been included in any of the rates. Filters may be applied in the removal of particles and liquid separation such as hydrocarbon fluids, glycols, process fluids, salt water, fresh water, and water solutions as well as filtering and separating gases. Filter pressure vessels can be vertical or horizontal with removable end closures.

1.250 LACT UNITS

1.250.100 60 mm and 89 mm Piping Units

Pump Size (kW)	(hp)	Base Rate ($)
7.5	10	**47 350**
11.2	15	**54 750**
14.9	20	**63 400**
18.6	25	**76 750**
22.4	30	**85 000**
29.8	40	**107 000**
37.3	50	**145 700**
74.6	100	**151 750**

1.250.200 114 mm Piping Units

Pump Size (kW)	(hp)	Base Rate ($)
7.5	10	**49 450**
11.2	15	**56 850**
14.9	20	**65 500**
18.6	25	**78 800**
22.4	30	**87 100**
29.8	40	**107 650**
37.3	50	**146 350**
74.6	100	**152 350**

Rates include: skids and foundation
piping, valves and fittings
suction strainer, sampler
BS & W monitor, temperature indicator
charge pump and motor
shipping pump and motor
divert valve and metering
low pressure switch, motor switches
vibration switch, PSV
high discharge pressure switch
discharge pressure transmitter
electrical, controls and panels
installation

Note: 1 hp = 0.7460 kW
LACT Units found with pump sizes exceeding 74.6 kW (100 hp) should be considered as special installations and costs obtained.

2.000 SCHEDULE B–ASSESSMENT YEAR MODIFIERS

The following assessment year modifiers are for machinery and equipment described in the Alberta Machinery and Equipment Assessment Manual.

Assessment Year	Assessment Year Modifier
2001	1.17
2000	1.14
1999	1.14
1998	1.10

3.000 SCHEDULE C–DEPRECIATION

Depreciation factors for machinery and equipment described in the Alberta Machinery and Equipment Assessment Manual is listed in Table 2–Depreciation Factors. Depreciation for machinery and equipment that is *not* described in the manual shall be determined in a manner that is fair and equitable with the depreciation factors listed in Table 2.

The anticipated age life for machinery and equipment described in Schedule A is 20 years. The anticipated age life for machinery and equipment located in specific classes of property is listed in Table 1.

"Age" refers to the chronological age or the effective age, in years.

"Effective age" refers to the estimated age of machinery and equipment based on its present condition, design features and engineer amenities. Effective age may be less than, equal to, or greater than actual age. Effective age is determined by examining the present condition, design features and engineer amenities of comparable types of machinery and equipment.

3.001 TABLE 1–ANTICIPATED AGE LIFE

CLASS OF PROPERTY	ANTICIPATED AGE LIFE OF M & E
Acid Plant	**20 years**
Brewery	**25 years**
Brick Plant	**25 years**
Cannery	**20 years**
Chemical Plant	**20 years**
Cement Plant	**20 years**
Coal Processing Plant	**20 years**
Distillery	**25 years**
Dairy, Creamery	**25 years**
Enhanced Oil Recovery	**15 years**
Feed or Flour Mill	**25 years**
Gas Processing (including sour gas)	**20 years**
Gas Injection or Compression	**20 years**
Insulation Plant	**20 years**
Meat Packing Plant	**25 years**
Methanol Plant	**15 years**
Oil Sand Processing Plant	**15 years**
Oilfield Battery	**20 years**
Plywood/OSB*/Wallboard Manufacturing Plant	**20 years**
Pulp Mill	**15 years**
Pelitizing Plant (Feed)	**20 years**
Refinery (Metal)	**15 years**
Refinery (Oil)	**20 years**
Refinery (Sugar)	**20 years**
Roofing Plant	**20 years**
Saw or Stud Mill	**20 years**
Seed Cleaning Plant	**25 years**
Soft Drink Plant	**20 years**
Steel Mill	**20 years**
Sulphur or Fertilizer Plant	**15 years**
Tire Plant	**15 years**
Water Flood	**20 years**

*OSB–Oriented Strand Board

3.002 TABLE 2–DEPRECIATION FACTORS - ANTICIPATED AGE LIFE

Age (Years)	10 Years	15 Years	20 Years	25 Years	30 Years	35 Years	50 Years	60 Years
0	75	75	75	75	75	75	75	75
1	75	75	75	75	75	75	75	75
2	75	75	75	75	75	75	75	75
3	73	75	75	75	75	75	75	75
4	66	75	75	75	75	75	75	75
5	59	71	75	75	75	75	75	75
6	53	66	74	75	75	75	75	75
7	48	62	70	75	75	75	75	75
8	43	58	66	72	75	75	75	75
9	40	54	63	69	74	75	75	75
10		50	60	67	71	75	75	75
11		47	57	64	69	73	75	75
12		44	54	61	67	71	75	75
13		41	51	59	64	69	75	75
14		40	49	57	62	67	75	75
15			46	54	60	65	74	75
16			44	52	58	63	72	75
17			42	50	56	61	71	75
18			40	48	54	59	70	74
19				46	53	58	68	73
20				44	51	56	67	72
21				42	49	54	65	70
22				41	47	53	64	69
23				40	46	51	63	68
24					44	50	62	67
25					43	48	60	66
26					41	47	59	65
27					40	46	58	64
28						44	57	63
29						43	56	61
30						42	55	60
31						41	54	59
32						40	52	58
33							51	57
34							50	57
35							49	56

Note: Expressed as percentage remaining

Anticipated Age Life (cont.)

Age (Years)	10 Years	15 Years	20 Years	25 Years	30 Years	35 Years	50 Years	60 Years
36							48	55
37							47	54
38							46	53
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Note: Expressed as percentage remaining

4.000 SCHEDULE D–ADDITIONAL DEPRECIATION

For any depreciation that is not reflected in Schedule C, the assessor may adjust for additional depreciation provided acceptable evidence of such loss in value exists.

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2001

ALBERTA
RAILWAY
ASSESSMENT MANUAL

Alberta
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Base Cost	($)
per kilometre	**391 000**

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2.001 ASSESSMENT YEAR MODIFIER

Assessment Year	Factor
2001	**1.08**

3.000 SCHEDULE C

3.001 ANNUAL TRAFFIC FACTOR

Description	Factor
More than 25 million tonnes	**0.400**
More than 15 million tonnes to a maximum of 25 million tonnes	**0.300**
More than 7 million tonnes to a maximum of 15 million tonnes	**0.150**
More than 3 million tonnes to a maximum of 7 million tonnes	**0.040**
More than 1 million tonnes to a maximum of 3 million tonnes	**0.030**
Less than 1 million tonnes	**0.025**
Rail line/ abandoned/ zero tonnes	**0.010**
Spur line on station ground or private land or marshalling or maintaining yards*	**0.020**

*Indicates rail value only, land is valued separately.

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2001
ALBERTA
CONSTRUCTION COST
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1.000 COSTS TO BE INCLUDED IN DETERMINING ASSESSABLE COSTS

The costs of construction reported by the company to the assessor are the actual expenditures made in constructing the facility as referenced in the agreement with the contractor or as incurred directly by the company.

Construction costs include both direct and indirect costs.

1.100 DIRECT COSTS VERSUS INDIRECT COSTS

Direct costs are costs for labour, materials, and installation costs which can be directly related to the construction of a specific facility.

Indirect costs are costs incurred away from the site or are costs allocated to the project. Indirect costs are also incurred by a company that uses in-house resources to construct a facility.

The assessor should review the company submission to determine whether in-house staff has been involved in any construction activities. When such activities are identified allowances for indirect costs should be included.

Direct costs include but are not limited to:

- staff, including labour, supervision, inspection, janitorial, and security,
- materials used for construction,
- consulting fees,
- engineering, design, and surveys,
- construction equipment: including scaffolding, pumps, tools, and consumable supplies,
- monitoring and control of construction,
- handling, and storage of materials and equipment,
- equipment maintenance, repairs, and winterization,
- temporary facilities,
- clean-up costs, removal of rubbish, and
- security, including yard lighting and fire protection.

Indirect costs include but are not limited to:

- general contractor and subcontractor profit,
- contractors' overhead including administration costs and head office allocations,
- staff recruitment,
- permits: building, electrical, etc.,
- insurance: fire, liability, property, etc., and
- cost to obtain a performance bond.

2.000 COSTS TO BE EXCLUDED IN DETERMINING ASSESSABLE COSTS

The following list of costs to be excluded when determining assessable cost. This list is not intended as exhaustive.

Not all construction costs associated with a project are included in determining assessable cost. A project cost may be excluded from assessable cost for one or more of the following reasons:

- it is the cost of a pre-construction activity,
- it is the cost of a post-construction activity,
- it is associated with a component of the project which is not defined as property in the Act,
- it is associated with property which is made exempt from assessment in the Act,

Two examples of abnormal costs are:

- a cost that would typically not be incurred in a balanced market, and/or
- a cost that is excluded to maintain consistency among regulated properties.

2.100 PRE-CONSTRUCTION AND POST-CONSTRUCTION COSTS

The identification of project costs that represent pre-construction and post-construction activities is somewhat arbitrary. It may be necessary for the assessor to meet with the company representative to determine the status of specific costs and to understand accepted industrial policies and practices.

2.200 PRE-CONSTRUCTION ACTIVITIES

2.200.100 Feasibility Studies

The costs associated with studies evaluating the viability of a proposed project are excluded. The costs of feasibility studies must be reported separately from the costs of developing working models that facilitate construction or staff training, which are included as project costs.

2.200.200 Cancellation Charges

Payments made to a contractor for cancellation of a project before any construction is performed, are excluded.

2.300 POST-CONSTRUCTION ACTIVITIES

2.300.100 Commissioning, Pre-production Runs, and Start up

The costs associated with the following activities occur after the physical completion of construction and are excluded.

Commissioning: the analysis and verification of operational processing or manufacturing systems.

Pre-production run: pre-operational run of the process allowing for adjustments, revisions, etc., that produce product to specification.

Start up: a run that produces on-specification product at design quantities within warranty provisions.

Note: the costs of equipment installed during commissioning, pre-production, and start up runs are included.

2.300.200 Consumable Materials

The costs for chemicals and catalysts consumed as part of an industrial process and during commissioning, pre-production, and start up are excluded.

2.400 PROPERTY THAT CANNOT BE ASSESSED

The cost of "property", "improvements", "structures", or "machinery and equipment" that do not meet the legislated definitions are excluded.

2.400.100 Royalties, Licenses, and Patent Fees

The payments made for the right to use particular processes are excluded.

2.400.200 Mobile Equipment

The costs for mobile equipment are excluded.

2.400.300 Spare Equipment

Machinery and equipment stored on site, but not designated as standby equipment, is excluded.

2.400.400 Design Changes, Alterations, and Modifications

Alteration costs incurred during construction that improve the operational efficiency of the original plant design, are excluded. Likewise, the costs of "debottlenecking" or modifying an operating process, are excluded if there are no changes to the equipment inventory.

Note: The cost of equipment installed to improve operational efficiency is included.

2.400.500 Interference Costs

Additional costs incurred for reasons of safety while working in close proximity to existing facilities, such as, the cost of pilings to ensure the structural integrity of existing buildings, the rerouting of piping, electrical lines, or telecommunications lines, are all excluded.

2.400.600 Goods and Services Tax (GST)

The GST paid on construction materials and services is excluded.

2.400.700 Import Duty and Broker Fees

The duty and fees levied on an imported component that increase its cost above the cost of a comparable component made in Canada, are excluded.

2.400.800 Bonus or Penalty

Bonuses such as those paid to a contractor for completion of the project prior to a stipulated deadline, are excluded. Similarly, a financial penalty imposed for failure to meet a condition in the contract are not deductible.

2.400.900 Computer Costs

Hardware and software computer costs that are not used, or intended to be used, as part of or in connection with the property being assessed, but are necessary to support the business activities carried on at the facility, such as accounting and personnel, are excluded.

2.500 PROPERTY EXEMPT FROM ASSESSMENT

Costs for property excluded from the assessment in accordance with Section 298 (1) of the Act are excluded.

2.600 ABNORMAL COSTS OF CONSTRUCTION

In order to reduce uncertainty and improve assessment consistency among regulated properties the following assumptions are made to describe normal conditions for the construction of regulated property:

- an adequate labour force is readily available at the worksite,
- raw materials and pre-fabricated component parts are readily available,
- projects are financed from operations or from shareholder equity and companies make no provision for interest during construction, and
- premium payments are not made for overtime worked.

The determination of what constitutes "typical" or "normal" is difficult; it is subjective and it may vary over time, from one location to another and among industries. If the actual costs of an industrial facility are greater than typical construction costs, the excess construction costs of the facility are considered abnormal and are excluded.

Abnormal costs can result from delays in construction caused by natural disasters, inclement weather or they may occur when the construction workforce is on site but a lack of supplies or a work slowdown reduces or stops actual construction. Additional costs incurred because of unproductive labour are excluded.

Specific documentation is required to substantiate claims for abnormal costs.

2.600.100 Travel Costs

The costs of paying staff for time spent travelling to and from the worksite or any costs to supply transportation for the workforce to and from the site are excluded.

2.600.200 Transportation Costs

The costs of transporting raw material and components from the Edmonton area to the work site are excluded. However, if the actual transportation costs from the point of origin to the plant site are equal to or less than the cost to the Edmonton area, the entire transportation costs are included.

Note: The cost of loading and unloading the raw materials and components are included.

2.600.300 Interest During Construction

The interest to finance the construction of a regulated property is excluded.

2.600.400 Overtime

The premium portion of wages and fringe benefits paid for overtime is excluded. For example, if time and a half is paid, the time portion is included however the half portion is excluded.

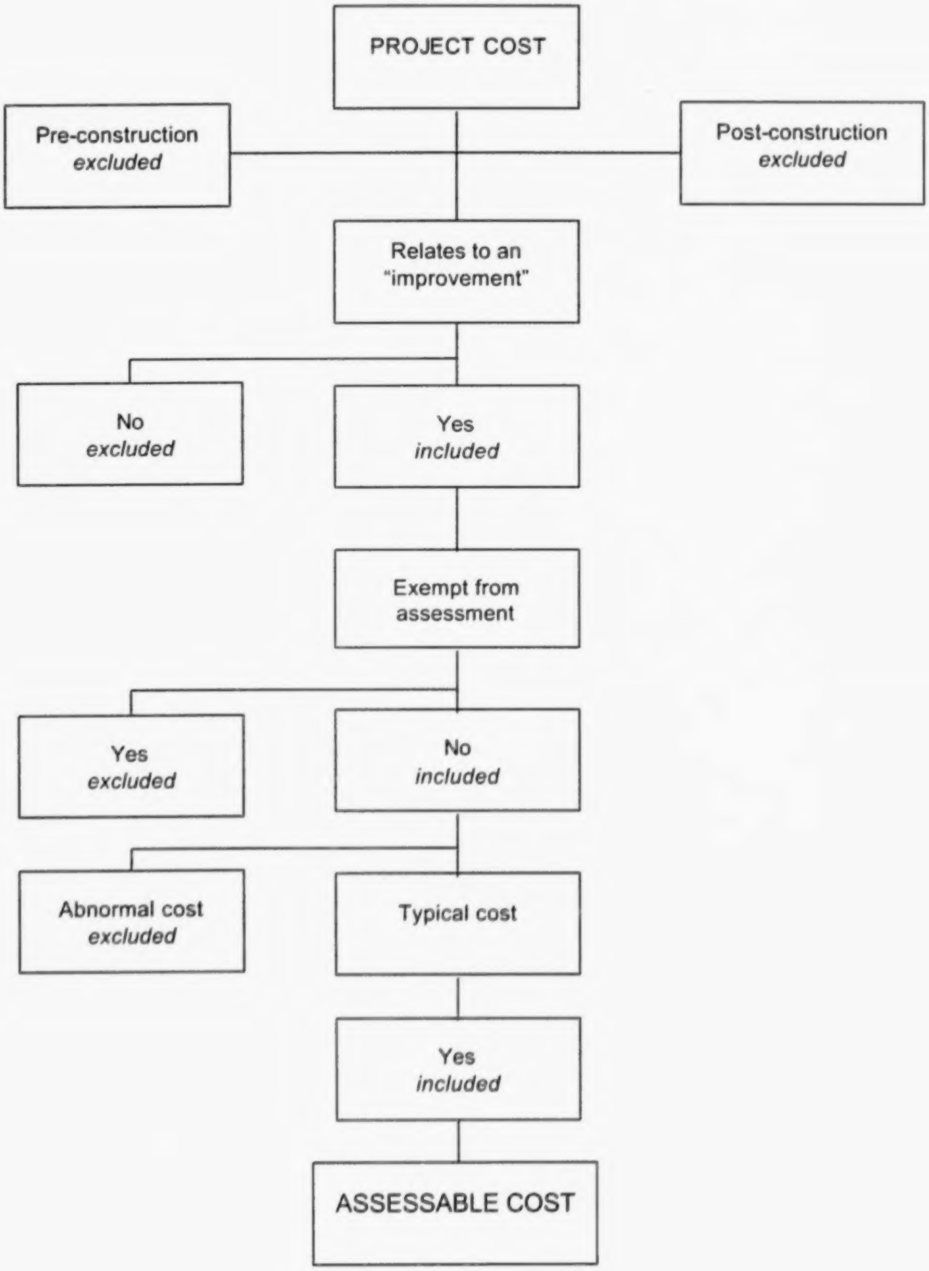
2.600.500 Property Taxes

The property and business taxes paid on a facility are excluded.

GLOSSARY

Act	The Municipal Government Act, S.A. 1994 cM-26.1
Company	The assessed person as described in Section 304 of the Municipal Government Act.
Company representative	A person authorized by the company in writing to provide information that will be used for the purposes of preparing an assessment.
Contractor	The person or firm designated by contract as responsible for the overall construction of the facility.
Edmonton area	The City of Edmonton and the surrounding area within 50 kilometres of the City limits.

FIGURE 1 FROM PROJECT COST TO BASE COST


PROJECT COST
Pre-construction excluded
Post-construction excluded
Relates to an "improvement"
No excluded
Yes included
Exempt from assessment
Yes excluded
No included
Abnormal cost excluded
Typical cost
Yes included
ASSESSABLE COST

INTERPRETIVE GUIDE

TO APPENDIX V
OF THE
2001 MINISTER'S GUIDELINES

Alberta
MUNICIPAL AFFAIRS

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INTRODUCTION

SCOPE AND PURPOSE OF THIS GUIDE

The purpose of this guide is to assist company representatives in providing information needed by assessors to prepare assessments for regulated properties.

The procedures in this guide are intended to be consistent with the value standards prescribed in the *Matters Relating to Assessment and Taxation Regulation.* Issues of assessability are to be determined in accordance with the legislation.

The policies and procedures incorporated in this guide are modeled on the appraisal principle of reproduction cost, subject to divergences necessary to meet the requirements of Alberta's assessment legislation and to provide a stable property tax base.

The costs reported by the application of this guide are used by the assessor to determine the construction cost for property that is not described in Schedule A of the *Linear Property Assessment Manual* or Schedule A of the *Machinery and Equipment Assessment Manual.*

Much of the information used to determine construction cost is derived from the internal records of the company and provided by the company representative to the assessor. A company's internal records may also include project costs that should not be included by the assessor when determining the property assessment. This guide identifies costs that are typically included – as well as costs that are excluded – in the determination of the property assessment.

The principal objectives of this guide are to specify minimum standards for reporting construction costs, and to describe the construction costs that should be included in determining assessable cost.

REPORTING CONSTRUCTION COSTS

STANDARDS FOR REPORTING COSTS

The following standards are presented as minimum requirements for reporting construction costs:

- Documentation should represent all construction costs of structures and machinery and equipment. If actual costs are not available, engineering estimates can be provided with a commitment by the company representatives that actual costs will be provided when available.
- Assessors should make initial requests for information when construction begins. Reporting procedures can be agreed upon by the company representative and the assessor. Concerns can be addressed before an assessment is prepared.
- The level of detail reported should be sufficient to ensure the accurate accounting of future additions, the removal of machinery and equipment, or the demolition of structures.
- Costs for large facilities can be reported on an operational unit or process basis. Costs for small facilities can be reported on an item basis, grouped by structure or by process.
- Costs relating to structures should be clearly separated from those relating to machinery and equipment.
- All construction costs should be reported. The company representative should note those costs that the company believes should be excluded from the assessment and cite the appropriate section of this guide or provide a full explanation for the exclusion.
- The net cost of machinery and equipment removed from the facility is deducted.
- The company submission should be signed by a company representative who has authority to make the submission.

An assessor who receives a submission that does not meet these minimum requirements should return it to the company representative with a detailed description of its deficiencies.

STRUCTURES VERSUS MACHINERY COSTS

It is important to distinguish between the construction costs of structures and the costs of machinery and equipment. Machinery and equipment costs include the cost of any supporting foundations and footings required by the machinery and equipment. Structure costs may need to be prorated and a portion of foundation and footing costs assigned to machinery and equipment.

THE ASSESSOR'S AUTHORITY TO REQUEST INFORMATION

The company has a statutory duty under the *Municipal Government Act* to provide information to the assessor. The Act authorizes the assessor to request, and requires the company to provide, any information necessary for the assessor to prepare an assessment.

If a company does not provide the requested information by the statutory time frame under section 295(4) of the Act, the company loses its right of complaint to the Municipal Government Board or to an Assessment Review Board. The assessor also has the ability to request and obtain information under sections 294 and 296 of the Act.

CONFIDENTIALITY OF INFORMATION

All information reported to, or obtained by the assessor for the purpose of preparation of the assessment belongs to the municipality for which the assessor is acting.

This information is subject to access and confidentiality provisions of sections 299 to 301.1 of the *Municipal Government Act*, and, where applicable, the provisions of the *Freedom of Information and Protection of Privacy Act*.

ASSESSABLE COSTS

The costs of construction to be reported by the company to the assessor are the actual expenditures made in constructing the facility, as referenced in an agreement with the contractor or as incurred by the owner.

Construction costs include all costs of materials and labour required to construct an industrial facility, including the costs required to install production machinery and equipment.

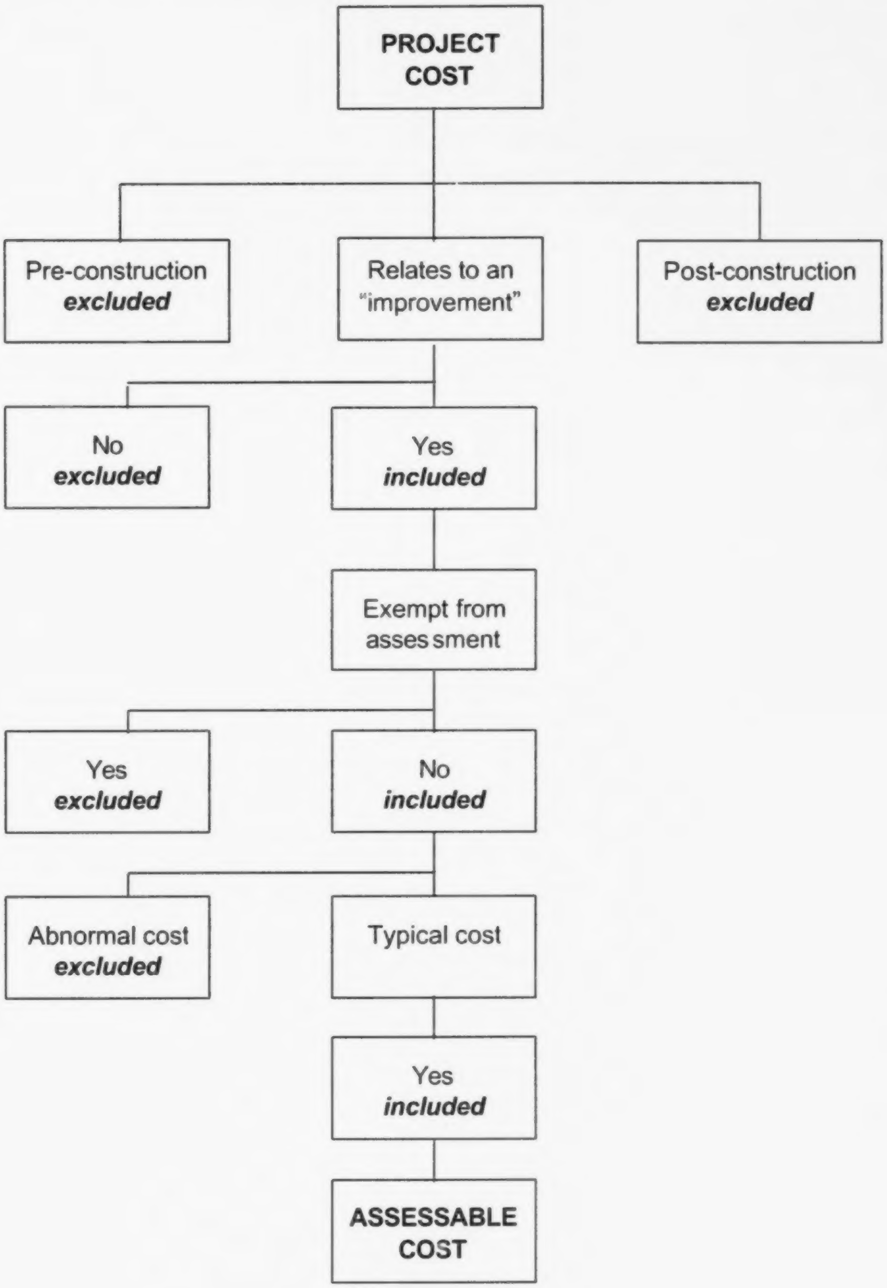
In addition to construction costs directly attributable to the project, reported costs include indirect costs assigned to the project.

Not all construction costs associated with a project are included in the determination of assessable cost. *(See diagram on page 5.)*

Project costs may be excluded for one or more of the following reasons:

- it is the cost of a pre-construction activity
- it is the cost of a post-construction activity
- it is associated with a component of the project that is not defined as property in the *Municipal Government Act*
- it is associated with property that is made exempt from assessment in the *Municipal Government Act*, and/or
- it is an abnormal cost if
    - in a balanced market it is a cost that would typically not be incurred, and/or
    - it is a cost that is excluded to maintain consistency among regulated properties.

FROM PROJECT COST TO ASSESSABLE COST


PROJECT COST
Pre-construction *excluded*
Relates to an "improvement"
Post-construction *excluded*
No *excluded*
Yes *included*
Exempt from assessment
Yes *excluded*
No *included*
Abnormal cost *excluded*
Typical cost
Yes *included*
ASSESSABLE COST

INCLUDED COSTS

DIRECT COSTS VERSUS INDIRECT COSTS

Construction costs are generally allocated between costs considered to be direct costs and those considered to be indirect costs. Direct costs are costs for labour and materials that can be directly related to the construction of a specific facility. These costs include but are not limited to:

- engineering, survey, and design studies
- staff: including labour, supervision, inspection, janitorial, and security
- materials used for construction
- construction equipment including scaffolding, pumps, tools, and consumable supplies
- handling and storage of materials
- equipment maintenance, repairs, and winterization
- temporary facilities
- security, including yard lighting
- building and site clean-up costs for the building and site, removal of rubbish, etc.
- permits: (building, electrical, etc.), and
- cost to obtain a performance bond.

Indirect costs are costs incurred by the contractor that are allocated to the project as overhead. Indirect costs are also incurred by the company that uses in-house resources to construct a facility.

The assessor should review the submission with the company representative to determine whether in-house staff has been involved in any construction activities. When such activities are identified, an allowance for overhead should be included.

The following list will assist in identifying costs that may be included in contractor overhead and need to be reported by the company for projects constructed in-house:

- general contractor and subcontractor profit
- contractor's overhead including administration costs and head office allocation
- consulting fees
- staff recruitment, and
- insurance (fire, liability, property, etc.).

The following examples of construction costs are NOT intended as an all inclusive list when determining assessable cost.

Consulting Fees

The costs of using consulting architects, engineers, and other specialists to advise on the project are included. An allowance for the costs of in-house consulting services should be included. *(See also: Feasibility Studies, page 10.)*

Working Models

The costs of working models to facilitate construction, improve operational efficiency, or train staff during construction are included.

Site Preparation

The costs to clear, level, and finish the site to standards typical for industrial property in the area are included. *(See also: Site Improvements, page 8, Retaining Walls, etc., page 8 , and Abnormal Costs of Construction, page 12.)*

Note: *When the land assessment is based on the value of finished industrial land (stripped and graded), the actual site preparation costs are excluded.*

The costs to deal with adverse factors, for example topography or soil conditions not ordinarily encountered in construction projects, as well as reclamation costs required to bring the site back to the quality of raw land in the vicinity, are considered abnormal costs and are therefore excluded.

Freight Charges

The costs of loading and unloading materials and equipment at the site are included. *(See also: Transportation Costs, page 13.)*

Temporary Facilities

The costs of constructing improvements erected as part of construction and removed following construction, for example offices, warehouses, staff quarters, boundary fencing, and security fences are included. The construction costs of temporary utilities and services are also included.

The construction costs of temporary facilities that are assessed separately from the facility are excluded from the facility's construction cost. When one of these temporary facilities is removed, the remaining net cost is added to the construction cost of the facility. For example:

Assessable cost	*$300,000*
Cost recovered from sale	*$200,000*
Net cost added to the facility construction cost	*$100,000*

In the case of temporary facilities that are leased, the net lease costs are included.

Temporary camp facilities will be assessed separately as long as they are located on the site.

Testing

The costs incurred while testing operating systems and equipment during construction are included. *(See also: Working Models, page 7, Feasibility Studies, page 10, and Commissioning, etc., page 10.)*

Site Improvements

The costs of landscaping, parking lots, lighting, internal roads, and sidewalks are included. *(See also: Site Preparation, page 7, Working Models, page 7, Feasibility Studies, page 10, and Commissioning, etc., page 10.)*

Retaining Walls, Reinforced Earth Walls, and Earth Berms

The costs of constructing retaining walls, reinforced earth walls, and earth berms are included. *(See also: Site Improvements, page 8.)*

Fire Protection

The construction costs for the facility's fire protection including housings, hydrants, fire lines, and sprinkler systems are included.

Communication Systems

The construction costs for internal communications systems are included.

Computer Costs

The computer costs, hardware and software, incurred during construction to monitor and control construction are included.

The computer costs, hardware and software that are an integral part of an operational unit, for example incurred to monitor, operate and/or control processing systems and equipment, are included. *(See also: Excluded Computer Costs, page 12.)*

Standby Equipment

The costs of standby equipment forming part of an operational unit intended to maintain continuous operation of a particular function in the event of peak loading or failure of the operational unit, are included.

Typically, standby equipment is found in operation or phases of an operation when it is not feasible to shut down the operation to replace a faulty piece of equipment. Common examples are power generators, pumps, motors, and compressors. *(See also: Spare Equipment, page 11.)*

Cranes and Craneways

The costs of cranes and associated craneways that are used as an integral part of an operational process and/or to service equipment are included and are assessable as machinery and equipment. The supporting foundations for the cranes and craneways are considered machinery and equipment.

The costs of cranes and craneways that are not assessable as machinery and equipment, for example to load the finished product, are included and are assessable as structures.

EXCLUDED COSTS

PRE-CONSTRUCTION AND POST-CONSTRUCTION COSTS

The distinctions between construction costs and project costs representing pre-construction and post-construction activities are somewhat arbitrary. It may be necessary for the assessor to meet with company representatives to determine the status of specific costs and to understand accepted industrial policies and practices.

PRE-CONSTRUCTION ACTIVITIES

Feasibility Studies

The costs associated with studies that evaluate the viability of a proposed project are excluded. The costs of feasibility studies must be reported separately from the costs for developing working models to facilitate construction or staff training which are included. *(See also: Consulting Fees, page 7, and Working Models, page 7.)*

Cancellation Charges

The payments made to a contractor for cancellation of a project before any construction is performed are excluded.

POST-CONSTRUCTION ACTIVITIES

Commissioning, Pre-Production Runs, and Start-up

These activities occur after the physical completion of construction or when contractual standards have been met in order for the facility to be turned over to the company. Costs associated with these activities are excluded. *(See also: Testing, page 8, and Design Changes, etc., page 11.)*

Note: *The cost of equipment installed during commissioning, pre-production, and start-up runs are included.*

Commissioning:	The analysis and verification of operational processing or manufacturing systems.
Pre-production run:	Pre-operational run of the process that allows for adjustments, revisions, etc., to produce the product to specification.
Start-up:	A run that produces an on-specification product at design quantities within the warranty provisions.

PROPERTY THAT CANNOT BE ASSESSED

In Alberta, assessments are based on the value of property as defined in the *Municipal Government Act.* The value of other types of property, such as personal property, are excluded. The definitions of property, improvement, structure, and machinery and equipment are set out in legislation.

Royalties, Licenses, and Patent Fees

The payments made for the right to use particular processes are excluded.

Mobile Equipment

The costs of mobile equipment are excluded. *(See also: Cranes and Craneways, page 9.)*

Consumable Materials

The costs of chemicals and catalysts consumed as part of an industrial process, and during commissioning, pre-production, and start-up, are excluded.

Spare Equipment

The cost of machinery and equipment stored on site, but not designated as standby equipment, is excluded. *(See also: Standby Equipment, page 9.)*

PROPERTY EXEMPT FROM ASSESSMENT

The *Municipal Government Act*, in section 298 (1), specifically excludes certain property from assessment, even though it fits within the statutory definitions in the Act. For example, the Act excludes a portion of a water conveyance in a manufacturing or processing plant (clause (g)), and provides a similar exclusion for sewage conveyance systems (clause (h)).

Design Changes, Alterations, and Modifications

Costs incurred during construction to make alterations that improve the operational efficiency of the original plant design are not assessable. Likewise, the costs of “de-bottlenecking” or modifying an operating process are not included as long as there are no changes to the equipment inventory.

The cost of equipment installed to improve operational efficiency is included.

Interference Costs

Additional costs incurred for reasons of safety while working in close proximity to existing facilities for example, the cost of pilings to ensure the structural integrity of existing buildings, the rerouting of piping, electrical lines, or telecommunications lines, are excluded.

Goods and Services Tax (GST)

The GST paid on construction materials and services is excluded. The GST paid by the owner is credited against tax collected by the owner from the sale of plant products and need not be recovered in the price of the product itself.

Import Duty and Broker Fees

The duty and fees levied on an imported component that increase its cost above the cost of a comparable component made in Canada, are excluded.

Bonus or Penalty

Payments made to a contractor for completion of a project prior to a stipulated deadline, for example are excluded. Similarly, the amount of a financial penalty imposed on the contractor for failing to meet a condition in the contract may not be deducted.

Computer Costs

The computer costs, hardware and software, not required to operate the facility but necessary to support the business activities carried on at the facility, for example accounting and personnel are excluded. *(See also: Included Computer Costs, page 9.)*

ABNORMAL COSTS OF CONSTRUCTION

If the actual costs of an industrial facility are greater than typical construction costs, then the excess construction costs of the facility are considered abnormal and are excluded.

Additional costs incurred because of unproductive labour are excluded.

Abnormal costs can result from delays in construction caused by natural disasters or inclement weather. Abnormal costs may also occur when the construction workforce is on site, but a lack of supplies or a work slowdown reduces or stops actual construction.

Specific documentation is required to substantiate claims for abnormal costs.

The determination of what constitutes "typical" or "normal" is difficult; it is subjective and it may vary over time, from one location to another and among industries. In an attempt to reduce uncertainty and produce assessment consistency for regulated properties, a number of assumptions are made when describing normal conditions for the construction of regulated property:

- an adequate labour force is readily available at the worksite
- raw materials and pre-fabricated component parts are readily available
- projects are financed from operations or from shareholder equity and companies make no provision for interest during construction, and
- premium payments are not made for overtime worked.

Travel Costs

The costs of paying staff for time spent travelling to and from the worksite are excluded. The costs to supply transportation for the workforce to and from the site are excluded.

Transportation Costs

The costs of transporting raw material and components from the Edmonton area to the work site are excluded. However, if the actual transportation costs from the point of origin to the plant site are equal to or less than the cost would be to the Edmonton area, the entire transportation costs are included. *(See also: Freight Charges, page 7.)*

Interest during Construction

The cost of interest on money to finance the construction of a project is excluded.

Overtime

The premium portion of wages and fringe benefits paid for overtime for work performed is excluded. For example, where time and a half is paid, the **time** portion is included and the **half** portion is excluded.

Property Taxes

The property and business taxes paid on the facility are excluded.

GLOSSARY

Term	Definition
Company	The assessed person as described in the *Municipal Government Act,* SA 1994 c M-26.1, section 304.
Company representative	A person authorized by the company, in writing, to provide information that will be used for the purposes of preparing an assessment.
Contractor	The person or firm designated by the contract as responsible for the overall construction of the facility.
Cost	Generally used in appraisal to mean the expenditures, direct and indirect [overhead], of constructing an improvement. *International Asscciation of Assessing Officers (IAAO), Glossary for Property Appraisal and Assessment, page 34.*
Edmonton area	The City of Edmonton and the surrounding area within 50 kilometres of the city limits.
Excluded cost	A cost that is excluded from the determination of assessable cost.
Improvement	As defined in the *Municipal Government Act,* SA 1994 c M-26.1, section 284(1)(j).
Included cost	A cost that is included in the determination of assessable cost.
Machinery and equipment	As defined in the *Matters Relating to Assessment and Taxation Regulation,* Alberta Regulation 289/99, section 2 (b).
Minister's Guidelines	A document setting out the prescribed procedure for preparation of assessment that is authorized by the *Municipal Government Act,* SA 1994 c M-26.1, section 289 and section 293 and provided for in the *Matters Relating to Assessment and Taxation Regulation*, Alberta Regulation 289/99.
Overhead cost	A cost that is not directly traceable to any given unit of output. Sometimes referred to as "indirect cost". It is impossible to draw a sharp line of demarcation between overhead and direct costs, and any classification of costs into these two groups is necessarily somewhat arbitrary. *IAAO Glossary for Property Appraisal and Assessment, (page 35)* define .
Property	As defined in the *Municipal Government Act, SA 1994 c M-26.1, section 284 (1) (r).*
Structure	As defined in the *Municipal Government Act, SA 1994* c M-26.1, section 284 (1) (u).

REFERENCE

1. *Municipal Government Act*, SA 1994 c M-26.1, section 284 (1) (j), pp 129.
2. *Municipal Government Act*, SA 1994 c M-26.1, section 284 (1) (r), pp 133.
3. *Municipal Government Act*, SA 1994 c M-26.1, section 284 (1) (u), pp 134.
4. *Municipal Government Act*, SA 1994 c M-26.1, section 289, pp 135.
5. *Municipal Government Act*, SA 1994 c M-26.1, section 293, pp 137.
6. *Municipal Government Act*, SA 1994 c M-26.1, section 294, pp 137.
7. *Municipal Government Act*, SA 1994 c M-26.1, section 295 (4), pp 138.
8. *Municipal Government Act*, SA 1994 c M-26.1, section 296, pp 138.
9. *Municipal Government Act*, SA 1994 c M-26.1, section 298 (1), pp 140.
10. *Municipal Government Act*, SA 1994 c M-26.1, section 299-301.1, pp 144.
11. *Municipal Government Act*, SA 1994 c M-26.1, section 304, pp 145.
12. *Matters Relating to Assessment and Taxation Regulation*, Alberta Regulation 289/99.
13. *Glossary for Property Appraisal and Assessment*, International Association of Assessing Officers (IAAO), page 34 & page 35.

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SCHEDULE 8

2001
ALBERTA
PROPERTY ASSESSMENT MANUAL
FOR
MANAGED WOODLOT OPERATIONS

Alberta
MUNICIPAL AFFAIRS

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8.000 SCHEDULE 8 - LAND ASSESSMENT FOR WOODLOT PRODUCTION

This procedure follows very closely to that of the 1984 Assessment Manual (Alberta Assessment Standards Branch 1984).

This procedure is designed to measure the capability of a designated woodlot to produce income from forest production. The ratings measure the ability of the site to produce timber under present climatic conditions using normal management practices.

The assessment value established for land under agricultural production is computed using a rating system that reflects the ability of the various types of soils to generate a net income from the production of woodlot products. The rating system assigns a numeric rating of 100 to the soil type proven to be capable of consistently producing, over an extended period of time, the highest net income under average climatic conditions and typical management practices. The rating of 100 also assumes that the highest net income is produced under optimum physical characteristics of the soil. All other soils are rated through a comparative rating system which reflects the net income relationships that exists between other types of soils and the soil type rated at 100. Further adjustments are made to account for less than optimal physical characteristics. In summary, soils that generate a lesser net income are assigned a correspondingly lower rating which in turn is reflected in the assessed value of the land. In extreme cases, where the gross income produced from a woodlot does not cover costs of production, the land may be rated for its potential as improved or native pasture lands.

The first step in applying the rating system is to identify and describe the physical properties present in a specific property. A comparative numeric rating system has been established that uses those properties to determine how each specific property rates on a provincial basis. That rating is then multiplied by a regulated base rate and a regulated factor to form an assessment on a per unit of area basis.

The comparative rating is divided into two parts. The first part is the **Net Productivity Rating** (NPR) which is the expected production of a site based on environmental conditions. It is calculated from the maximum climatic potential (Master Rating) and modified by soil and site moisture regimes, soil nutrient regimes, and rooting volume considerations.

The basis of net productivity rating is the identification of natural areas with similar maximum production potentials based on inherent climatic characteristics. The basis of these areas is the Natural Regions and Subregions of Alberta, as defined by the Alberta Ecological Working Group (Alberta Environment 1994, Map 1). This map defines natural forest types that have developed in response to long-term temperature and moisture conditions. Eleven natural ecological areas (Map 2) have been recognized for woodlot assessment in the forested White Area of Alberta. They include the Dry Mixedwood, the Central Mixedwood the Lower Foothills, the Montane and the Parkland Subregions within four general forest regions: the Peace, the North-Central, the West-Central and the Southwest.

The Master Rating reflects the maximum forest production expected in each of the defined ecological (climatic) regions. It represents the climatic potential assuming no soil limitations. The Master Ratings are based on measured forest production values converted to a scale of 100.

The soil moisture considerations include texture and water table. Soil texture and associated water holding capacity influences the amount of water that can be held for forest use. Sands hold little water while clays hold the most water but have decreased aeration. Medium textures are preferred. The first adjustment is based on the surface texture (0-20 cm) with a modification for strongly contrasting subsoils (20-100 cm).

Site moisture or external landscape drainage also impacts on the amount of water available for tree growth. Steep slopes shed water, while depressions accumulate water or have a high water table. The lower portions of long slopes often receive lateral seepage that can be high in both oxygen and nutrients. This is mainly a landform concern but extremes of soil textures also impact the assessment. For example, fine textured clayey soils are, at best, moderately well drained, while sands are commonly assessed "very rapid" drainage in sloping positions. Allowances are made for the benefits of seepage situations in lower slope positions and for water table influences not apparent in the soil profile.

Natural fertility is assessed through a nutrient adjustment. The main factors in mineral soils are organic content, a source of Nitrogen and pH which affects the availability of mineral elements. Slightly acidic conditions are considered ideal. Organic soils have additional limitations. Fortunately, there is a good relationship between pH, level of decomposition of the organic material (fibre content) and nutrient regime. More highly decomposed humic materials are generally more productive than non-decomposed fibric materials.

Rooting volume is another factor that can affect tree growth. This factor recognizes that tree roots need some minimum soil volume for both nourishment and stability.
There may be other soil or landscape factors encountered from time-to-time that can affect tree production. For example, salinity is seldom encountered in a forest environment, but it does affect tree growth.

Net Productivity Rating is calculated from the accumulated effects of the above factors.
NPR = Master Rating – soil moisture and site moisture adjustments – nutrient adjustment – rooting zone adjustments.

The second part of the assessment is the **Increased Cost of Production** (ICP). Optimum costs of production have been established encompassing those costs used to generate woodlot income based on typical practices of the day. Certain landscape may be encountered that require input costs over and above the typical costs. Additional adjustments are made to reflect their effect on the net income.

Topography or slope steepness is a principle consideration. The amount of slope affects both access, the cost of roads, and attention to erosion control. This is particularly true as slope steepness increases beyond about 20%.

The amount of surface stones can affect the operation of mechanical equipment and reforestation efforts. This is not a major concern in Alberta but has been included for completeness.

Surface wetness is another factor that can affect woodlot management. It can affect trafficability and may limit time of harvesting or other operations. As Alberta has a long winter season, this is not a major concern but has been recognized.

The continuity or shape of a parcel of land can create a nuisance factor and increases the cost of production. The main concern is for stream crossings that affect both access (transportation) and erosion (or buffer requirement) management.

Increased Cost of Production is calculated as the sum of the ICP factors.
ICP = (topography + stoniness + wetness + pattern).
Net Productivity Rating minus the Increased Cost of Production = Final Site Rating.

NPR = Master Rating – (soil moisture and site moisture adjustments) – (nutrient adjustment) – (rooting zone adjustment) – (other adjustments).

For assessment purposes, all woodlot lands are classified into three classes:

Productive	– where there is economic tree harvesting
Restricted	– when land is designated as non-harvestable for specified reasons such as water course protection, erosion control or protected species habitat.
No economic value	– This designation is applied to any area that makes no contribution to net income.

Note: In the following sections, soil descriptions will follow the CanSIS Manual for describing soils in the field (1983). The general format and many of the individual soil limitations follow the Land Suitability Rating System (AIWG 1995).

8.100 PRODUCTIVE WOODLOT

Productive woodlots will be evaluated on their potential to produce a tree crop based on soil and site conditions irrespective of the present standing crop.

8.200 NET PRODUCTIVITY RATING (NPR)

This is the expected production of a site based on environmental conditions. It is calculated from the maximum climatic potential (Master Rating) modified by soil and site moisture regimes, soil nutrient regimes and rooting volume considerations.

Maximum woodlot productivity is established for each of 11 natural ecological areas (Map 1). These areas are the forested Natural Subregions as defined by the Alberta Ecological Working Group (Alberta Environment 1994) that are found in the White Area of Alberta and the adjoining Green Areas. They include the Dry Mixedwood, the Central Mixedwood, the Lower Foothills, the Montane and the Parkland. These are further segregated into four general forest regions: the Peace, the North-Central, the West-Central and the Southwest.

Calculated from the accumulated effects of the following factors:
NPR = Master Rating – (soil moisture and site moisture adjustments) – (nutrient adjustment) – (rooting zone adjustment) – (other adjustments)

8.200.100 Master rating

The Master Rating reflects the maximum forest production expected in each of the defined ecological (climatic) regions (see Map 1). It represents the climatic potential based on measured forest production as found in the referenced ecosite Guidebooks and field testing (Table 1).

Table 1 **Master ratings for defined ecological regions**

Forest Areas	Ecological Subregions	Average GDD	Average P-PET	Maximum MAI	Master Rating
Peace	Dry Mixedwood	1250	+30	3.36	**85**
	Central Mixedwood	1200	+80	3.64	**90**
	Lower Foothills	1100	+100	3.93	**95**
North Central	Dry Mixedwood	1350	+30	3.36	**85**
	Central Mixedwood	1250	+80	3.93	**95**
West Central	Parkland	1350	+10	2.79	**75**
	Dry Mixedwood	1250	+60	3.50	**90**
	Central Mixedwood	1200	+100	3.93	**95**
	Lower Foothills	1100	+120	4.21	**100**
Southwest	Montane	1250		2.50	**70**
	Lower Foothills	1150	+170	3.64	**90**

*GDD = Growing Degree Days above 50 C; P-PET = precipitation minus potential evapotranspiration; MAI = mean annual increment in m^3/ha/yr

8.200.200 **Soil moisture (texture) adjustment**

Soil texture and associated water holding capacity influences the amount of water that can be held for forest use. Sands hold little water while clays hold the most water but have decreased aeration. Medium textures are preferred (Table 2). The first adjustment is based on the surface texture (0-20 cm) with a modification for strongly contrasting subsoils (20-100cm) (Table 3).

Table 2 **Soil moisture adjustment**

Texture	S	LS	SL	L	CL	SiL	C	SiC	HC
% C+Si	10	20	40	60	70	75	80	85	95
mm/m	40	60	100	150	170	180	190	200	225
% reduction	**20**	**10**	**5**	**0**	**0**	**0**	**2**	**5**	**10**

S = sand, LS = loamy sand, SL = sandy loam, L = loam, CL = clay loam, SiL = silt loam
C = clay, SiC = silty clay, HC = heavy clay

Table 3 **Subsoil moisture modification**

Average subsurface texture	Average surface texture	
	Sandy (S, LS)	Loamy (SL, L)
Sandy (S, LS)	0	-5
Loamy (SL, L)	5	0
Clayey (CL+)	10	5

Note: To be subtracted from soil moisture adjustment.

8.200.300 Site moisture adjustment

This factor recognizes that external and internal soil drainage impact the amount of water available for tree growth (Table 4). Steep slopes shed water, while depressions accumulate water or have a high water table. The lower portions of long slopes often receive lateral seepage that can be high in both oxygen and nutrients. This is mainly a landform concern but extremes of soil textures also impact the assessment. For example, fine textured clayey soils are, at best, moderately well drained while sands are commonly assessed "very rapid" drainage in sloping positions.

Table 4 **Site moisture (drainage) adjustment**

Drainage Class	Common depth to water table (cm)	% reduction/ addition	Associated moisture regime
Very rapid	-	**20**	Xeric
Rapid	-	**15**	Subxeric
Well	>125	**10**	Submesic
Moderately well	100	**5**	Mesic
Imperfect*	75	**0**	Subhygric
Imperfect to poor*	50	**5**	Hygric
Poor	25	**10**	Subhydric
Very poor	0	**30**	Hydric

*For seepage situations in lower slope positions, decrease the reduction by 5% (that is, Imperfect to Poor becomes 5 and Imperfect would become +5)

Water table influences not apparent in the soil profile would be handled in the same manner. This would apply particularly to very sandy situations where deep rooted vegetation can take advantage of water tables at 1.5 to 2 metres depth.

8.200.400 **Nutrient adjustment**

The nutrient adjustment is an assessment of natural fertility. The main factors in mineral soils are organic matter content, a source of Nitrogen, (Table 5) and pH which all affect the availability of mineral elements (Table 6). Organic soils have additional limitations. Fortunately, there is a good relationship between pH, level of decomposition of the organic material (fibre content) and nutrient regime (Table 7).

Table 5 **Organic matter adjustment for mineral soils**

Type	**Peatymor**		**Mull**		**Moder**		**Mor**		
Depth L-H (cm)	-	-	2	3	5	8	10	5	2
Depth O (cm)	30	10	-	-	-	-	-	-	-
Depth Ah (cm)		10	20	10	5	2	<2	<2	<2
% reduction	**10**	**0**	**0**	**0**	**2**	**5**	**10**	**15**	**20**
Typical Soil Taxonomy	Peaty Gleysolic		Black Chernozemic		Dark Gray Gray Luvisolic		Brunisolic		

Note: Ah has a Munsell color value darker than 5

Table 6 **pH adjustment for mineral soils**

pH	**3.0**	**3.5**	**4.0**	**4.5**	**5.0**	**5.5**	**6.0**	**6.5**	**7.0**	**7.5**	**8.0**
% reduction	**30**	**20**	**15**	**10**	**5**	**0**	**0**	**5**	**10**	**15**	**25**

Table 7 **Nutrient adjustment for organic soils**

Reaction pH	Decomposition class*	Fibric	Mesic	Humic
	Fibre content (%)	80	25	5
	Von Post scale	2	5	9
7.5		50	30	15
7.0		45	25	10
6.5		40	25	10
6.0		40	25	10
5.5		40	25	10
5.0		45	30	15
4.5		50	35	20
4.0		55	40	30
3.5		60	45	40
3.0		70	55	50

*Fibric = non-decomposed (composed mainly of sphagnic material), mesic = moderately decomposed (composed mainly of brown mosses or sedges), humic = strongly decomposed. Mesic is the most common situation. See glossary for definitions.

8.200.500 Rooting depth adjustment

This factor recognizes that tree roots have a minimum soil volume requirement for both nourishment and stability (Table 8).

Table 8 **Percent reduction for rooting depth limitation**

Depth to restricting layer (cm)	Root penetration		
	restricted	limited	none
0	50	80	100
10	40	70	95
20	30	50	90
40	10	30	80
60	0	10	60
80	0	5	40
100	0	0	20
120	0	0	10

Note: Restricted = tough B horizons = clay texture with Db >1.60; CL >1.65; L> 1.70; S>1.75
Limited = paralithic material = diggable sandstones and shales (Cretateous and Tertiary)

8.200.600 Miscellaneous deductions

Deductions may be applied for other soil characteristics that clearly affect production. Salinity is seldom encountered in a forest environment but if it does it will affect tree growth (Table 9).

Table 9 **Salinity adjustment**

Salinity (dS/m)	0	2	4	6	8	10
% reduction	0	10	30	50	70	90

8.300 INCREASED COST OF PRODUCTION (ICP)

Optimum costs for production have been established including those costs used to generate woodlot income based on typical practices of the day. Certain landscape features may be encountered that require input costs over and above the typical costs: additional adjustments are made to reflect their effect on net income.

Increased cost of production is calculated as the sum of the following ICP factors:
ICP = % reduction (topography + stoniness + wetness + pattern)

8.300.100 Topography (slope steepness)

The amount of slope affects access, the cost of roads, and attention to erosion control. This is particularly true as slope steepness increases beyond about 20% (Table 10).

Table 10 **Slope steepness adjustment**

Slope steepness (%)	5	10	15	20	25	30	35	40	45
% reduction	0	0	3	6	9	12	16	20	25

8.300.200 Stoniness

The amount of surface stones can affect the operation of mechanical equipment and reforestation efforts (Table 11). This is not a major concern in Alberta but has been included for completeness.

Table 11 **Stoniness adjustment**

Stoniness class	0	1	2	3	4
% reduction	0	0	0	5	20

8.300.300 Flooding/Drainage

Wetness affects trafficability and may limit harvesting access or other operations. As Alberta has a long winter season, this is not a major concern but has been recognized (Table 12).

Table 12 **Site wetness adjustment**

Drainage	Well	Imperfect	Poor	Very poor	Bog	Fen
% reduction	0	2	5	10	15	20
Flooding likelihood (years/10)	0	2	4	6	8	10

8.300.400 **Pattern**

Pattern recognizes the nuisance effect of land continuity or shape. The main concern is for stream crossings that affect both access (transportation) and erosion (or buffer requirement) management (Table 13).

Table 13 **Pattern adjustment**

Number of crossings/km	**0**	**2**	**4**	**6**	**8**	**10**
% reduction	**0**	**1**	**3**	**7**	**12**	**20**
Number of obstructions per ¼ sec.	0	2	4	6	8	10

8.400 RESTRICTED USE LAND

Restricted use land is land that is designated as non-harvestable for specified reasons such as water course protection erosion control or protected species habitat. There may be limited harvesting.

It may be assessed based on inherent hayland or pasture value or at a specified base rate.

If there is limited harvesting, it is suggested that the Master Rating be reduced by 50%.

8.500 FINAL SITE PRODUCTIVITY RATING

The Final Site Rating is calculated as the Net Productivity Rating minus the Increased Cost of Production.

NPR – ICP = Final site rating

8.600 ASSESSMENT VALUE CALCULATION

8.600.100 Base Rate and Assessment Year Modifier

The Woodlot Base Rate per acre, prescribed by regulation for each class of woodlot land, is multiplied by the appropriate assessment year modifier for each class of woodlot land to produce the Woodlot Use Value Base Rate, per acre, for the base year of the assessment.

8.600.200 Final Rating

The final rating for each field is converted to value by applying the final rating as a factor, to the appropriate Woodlot Use Value Base Rate, per acre. The resultant value per acre is then multiplied by the number of acres in the field. This process is applied to each field in the parcel and the addition of the values determined for each field produces the Woodlot Use Value for the parcel.

8.600.300 Location Rating

The assessment of a woodlot parcel is modified using location rating factors located in 7.060.500: the result is the Woodlot Use Value.

8.600.400 Assessment

The assessment value entered on the assessment roll for taxation purposes is calculated as:

Assessment = Base Rate x assessment year modifier x final productivity rating x acres x location rating

APPENDICES

APPENDIX 1 GLOSSARY OF TERMS

The soils terms were taken mainly from Canadian Society of Soil Science (1976):

Term	Definition
A horizon	A mineral horizon formed at or near the surface in the zone of removal of materials in solution and suspension, or maximum accumulation of organic carbon, or both.
Ae	A horizon that has been eluviated of clay, iron, aluminium, or organic matter, or all of these.
afforestation	Conversion of bare or cultivated land into forest.
Ah	A horizon in which organic matter has accumulated as a result of biological activity.
acid soil	A soil having a pH of less than 7.0.
aggregate	A group of soil particles cohering so as to behave mechanically as a unit.
alkaline soils	Any soil that has pH greater than 7.0.
arable	Tillage; agricultural production based on cultivation practices; land that is cultivated or capable of being cultivated. Arable is used as a comparison to agriculture based on grazing (non-cultivated) systems.
B horizon	A subsoil horizon characterized by one of: (a) enrichment in clay, iron, aluminium, or humus (Bt or Bf). (b) a prismatic or columnar structure that exhibits pronounced coatings or stainings associated with significant amounts of exchangeable sodium (Bn or Bnt). (c) an alteration by hydrolysis, reduction, or oxidation to give a change in color or structure from the horizons above or below, or both (Bm).
bedrock	The solid rock underlying soils and the regolith or exposed at the surface.
bog	A peat-covered or peat-filled wetland, generally with a high water table. The water of a bog is generally acid and low in nutrients. Bogs usually support a black spruce forest but may also be treeless. They are usually covered with sphagnum and feathermosses and ericaceous shrubs.
Brunisolic	An order of soils whose horizons are developed sufficiently to exclude them from the Regosolic Order but lack the degrees or kinds of horizon development specified for soils in other orders. They always have Bm or Btj horizons.
buffer or buffer zone	A strip or area of forest or land, usually along sensitive sites such as watercourses or key wildlife habitats, that are under a protected or restricted management regime.
bulk density, soil	The mass of dry soil per unit bulk volume.
C horizon	A mineral horizon comparatively unaffected by the pedogenic processes operative in the A and B horizons except for the process of gleying (Cg) or the accumulation of calcium carbonate (Cca) or other salts (Csa). A naturally calcareous C horizon is designated Ck.

Term	Definition
Chernozemic	An order of soils that have developed under xerophytic or mesophytic grasses and forbs, or under grassland-forest transition vegetation, in cool to cold, subarid to subhumid climates. The soils have a dark-coloured surface (Ah,Ahe or Ap) horizon and a B or C horizon, or both, of high base saturation. The order consists of the Brown, Dark Brown, Black and Dark Gray great groups.
classification, soil	The systematic arrangement of soils into categories and classes on the basis of their characteristics. Broad groupings are made on the basis of general characteristics and subdivisions on the basis of more detailed differences in specific properties.
clay	A size fraction <0.002 mm equivalent diameter: See also texture.
clod	A compact, coherent mass of soil produced by digging, plowing or remoulding.
coarse fragments	Rock or mineral particles >2.0 mm in diameter.
coarse texture	The texture exhibited by sands, loamy sands, and sandy loams except very fine sandy loam. A soil containing large quantities of these textural classes.
drainage	Soil drainage refers to the frequency and duration of periods when the soil is not saturated. Terms used are - excessively, well, moderately, imperfectly and poorly drained.
duff	The layer of partially and fully decomposed organic materials lying below the litter and immediately above the mineral soil.
edatope	Moisture/nutrient grid that displays the potential ranges of relative moisture (very dry to wet) and nutrient (very poor to very rich) conditions and outlines relationships between each ecosite.
ecosite	Relatively small (restricted) ecological units that develop under specific environmental influences of climate, moisture and nutrient regimes.
eolian	Material that has been deposited by wind action.
erosion	The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep.
evapotranspiration	The combined loss of water from a given area and during a specific period of time, by evaporation from the soil surface and by transpiration from plants.
fen	A peat-covered or peat-filled wetland with a water table which usually at or above the surface. The waters are mainly nutrient-rich, minerotrophic waters from mineral soils. The vegetation consists mainly of sedges, grasses, reeds and brown mosses with some shrub cover and at times, a scanty tree layer.
fertility, soil	The status of a soil with respect to the amount and availability of elements necessary for plant growth.
fibre (rubbed)	Amount of fibre in an organic soil, > than 0.15 mm, remaining after a specified amount of abrasion (rubbing). A fibric soil has > 40 % rubbed fibre, a mesic soil has 10% to 40% rubbed fibre and a humic soil has < 10% rubbed fibre.
fibric	An organic layer containing large amounts of weakly decomposed material whose origins are readily identifiable (von Post 1-4).
fine texture	Consisting of or containing large quantities of the fine fractions, particularly of silt and clay.
fluvial	Material that has been transported and deposited by streams and rivers. Also alluvial.
frost-free period	Season of the year between the last frost of spring and first frost of fall.

Term	Definition
Gleysolic	An order of soils developed under wet conditions and permanent or periodic reduction. These soils have low chromas, or prominent mottling, or both, in some horizons. The great groups Gleysol, Humic Gleysol and Luvic Gleysol are included in the order.
gravelly	Containing appreciable or significant amounts of gravel (particles 2 to 75 mm in diameter).
Green Area	An administrative classification of public lands in Alberta that are managed primarily for forest production, watershed protection, fish and wildlife habitat, recreation and other multiple uses.
groundwater	That portion of the hydrosphere which at any particular time is either passing through or standing in the soil and the underlying strata and is free to move under the influence of gravity.
growing degree days (GDD)	The accumulated heat units above a threshold temperature – in this case, 5^{o}C. They are calculated as (mean daily temperature – 5) x days.
growing season	Nominally, the length of time with a mean daily temperature above 5^{o}C.
horizon	A layer in the soil profile approximately parallel to the land surface with more or less well-defined characteristics that have been produced through the operation of soil forming processes. Soil horizons may be organic or mineral.
humic	An organic layer of highly decomposed material containing little fibre (von Post 7-10).
hummocky	Abounding in rounded or conical knolls or mounds, generally of equidimensional shape and not ridge-like.
impeded drainage	A condition which hinders the movement of water through soils under the influence of gravity.
infiltration	The downward entry of water into the soil.
irrigation	The artificial application of water to the soil for the benefit of growing crops.
lacustrine	Material deposited in lake water and later exposed.
landscape	All the natural features such as fields, hills, forests, water, etc., which distinguish one part of the earth's surface from another part. Usually that portion of land or territory which the eye can comprehend in a single view, including all its natural characteristics.
lithic	A feature of a soil subgroup which indicates a bedrock contact within 50 cm of the soil surface.
litter	Standing and fallen dead plant material that was produced naturally on site.
loam	See soil texture. A mixture of sand, silt and clay. It is not related to colour.
Luvisolic	An order of soils that have eluvial (Ae) horizons, and illuvial (Bt) horizons in which silicate clay is the main accumulation product. The soils developed under forest or forest-grassland transition in a moderate to cool climate. The most common forest soils in western Canada.
map unit	A map unit is any identified parcel of land that appears different from the rest of the area in terms of topography, vegetation or soils.
management unit	An area or tract of forestland that is managed in the same way.
Mean Annual Increment (MAI)	The average volume of wood accumulated by a tree or stand on a yearly basis. The usual measurement is m^3/ha/y.

Term	Definition
medium texture	Intermediate between fine-textured and coarse-textured (soils). (It includes the following textural classes: very fine sandy loam, loam, silt loam, and silt).
merchantable timber	A tree or stand of trees that are "of acceptable age" or "of acceptable quality" to be harvested and converted into saleable products.
mesic	An organic layer of intermediately decomposed material (between that of fibric and humic) (von Post 4-6).
mixedwood stands	Stands containing both deciduous and coniferous species.
moderately-coarse texture	Consisting predominantly of coarse particles. (In soil textural classification, it includes all the sandy loams except the very fine sandy loam).
moder	Humus form that displays the diagnostic organic horizons with varying degrees of intermixing between the organic and mineral horizons, producing a gradual transition between the horizons
moderately-fine texture	Consisting predominantly of intermediate-size (In soil textural classification, it includes clay loam, sandy clay loam, and silty clay loam).
moisture regime	Represents the available moisture supply for plant growth on a relative scale. It is assessed through an integration of species composition and soil and site characteristics.
mor	Humus form that displays diagnostic F and H horizons, with a distinct boundary evident between the organic and mineral layer. There is no intermixing of organic and mineral horizons.
morphology, soil	The makeup of the soil, including texture, structure, consistence, colour, and other mineralogical, physical and biological properties of the various horizons of the soil profile.
mull	Humus form where the diagnostic F and H horizons are commonly lacking. There is considerable mixing of organic material into the surface mineral horizon thereby creating a relatively thick Ah horizon.
Natural Regions	Small scale landscape patterns with similar combinations of vegetation, landforms and soils. Six regions are identified in Alberta: Grassland, Parkland, Boreal Forest, Rocky Mountains and Canadian Shield.
Natural Subregions	Subdivisions of the regions. Twenty are recognized in Alberta.
nutrient regime	Amount of essential nutrients that are available for plant growth. The determination of nutrient regime requires the integration of many environmental and biotic parameters.
Organic	An order of soils that have developed dominantly from organic deposits. The majority of organic soils are saturated for most of the year, unless artificially drained. The great groups include Fibrisol, Mesisol, Humisol and Folisol.
organic matter	The decomposition residues of biological materials derived from: (a) plant and animal materials deposited on the surface of the soils; and (b) roots and micro-organisms that decay beneath the surface of the soil.
P-PET	Precipitation – potential evapotranspiration is an index of moisture balance.
paralithic	Poorly consolidated bedrock which can be dug with a spade when moist. It is severely constraining but not impenetrable to roots.
parent material	The unconsolidated and more or less chemically weathered mineral or organic matter from which the solum of a soil is

Term	Definition
	developed by pedogenic processes.
peat	Unconsolidated soil material consisting largely of organic remains (mainly derived from mosses or sedges).
peatymor	Humus form that is strongly associated with lowland, poorly or very poorly drained sites. It is sharply delineated from the mineral soil and is composed of Of, Om and/or Oh horizons.
pH, soil	The negative logarithm of the hydrogen-ion activity of a soil. The degree of acidity (or alkalinity) of a soil as determined by means of glass, quinhydrone, or other suitable electrode or indicator at a specified moisture content of soil-water ratio, and expressed in terms of the pH scale.
productivity	A measure of the physical yield of a particular crop. It must be related to a specified management. Productivity may be used to describe or define suitability but it would be inappropriate as a definition of capability which puts more emphasis on vulnerability or flexibility - on available options - rather than simply yields
profile, soil	A vertical section of the soil through all its horizons and extending into the parent material.
reaction, soils	The degree of acidity or alkalinity of soil, usually expressed as a pH value.
Regosolic	An order of soils having no horizon development or development of the A and B horizons insufficient to meet the requirements of the other orders. Included are Regosol and Humic Regosol great groups.
rotation	The period of years required to establish and grow even-aged timber stands to a specified condition of maturity.
saline soil	A nonalkali soil containing soluble salts in such quantities that they interfere with the growth of most crop plants. The conductivity of the saturation extract is greater than 4 dS/m (formerly mmhos/cm), the exchangeable- sodium percentage is less than 15, and the pH is usually less than 8.5.
sand	A soil particle between 0.05 and 2.0 mm in diameter.
volume	Amount of wood in a tree, stand of trees or other specified area, according to some unit of measure, usually in terms of cubic meter.
silt	A soil separate consisting of particles between 0.05 to 0.002 mm in equivalent diameter.
silviculture	The theory and practice of controlling the establishment, composition, structure and growth of forests.
Site Index (SI)	Predicted height for a specific tree species at a given breast height age (50 years used in this report)
soil	The unconsolidated mineral material on the immediate surface of the earth that serves as a natural medium for the growth of land plants.
soil map	A map showing the distribution of soil types or other soil mapping units in relation to the prominent physical and cultural features of the earth's surface.
soil moisture	Water contained in the soil.
soil structure	The combination or arrangement of primary soil particles into secondary particles, unit or peds. These secondary units may be, but usually are not, arranged in the profile in such a manner as to give a distinctive characteristics pattern. The secondary units are characterized and classified on the basis of size, shape, and degree of distinctness into classes, types, and grades,

Term	Definition
	respectively. Common terms for kind of structure are - single grain, amorphous, blocky, subangular blocky, granular, platy, prismatic and columnar.
soil survey	The systematic examination, description, classification, and mapping of soils in an area. Soil surveys are ranked according to the kind and intensity of field examination.
Solonetzic	An order of soils developed mainly under grass or grass-forest vegetative cover in semiarid to subhumid climates. The soils have a stained brownish or blackish solonetzic B (Bn, Bnt) horizon and a saline C horizon. The order includes the Solonetz, Solodized Solonetz and Solod great groups.
stand	A community of trees sufficiently uniform in species, age, arrangement or condition so as to be distinguishable as a group in the forest or other growth in the area.
stand tending	Activities such as weeding, pruning, and thinning undertaken to benefit the growth or quality of a forest or stand of trees.
sustained yield	Management of forest land for continuous production with the aim of achieving, at the earliest practical time, a balance between net growth and harvest.
stocking	A measure of the proportion of an area occupied by trees/seedlings, expressed in terms of number of trees per specified area.
subsoil	Although a common term it cannot be defined specifically. It may be the B horizon of a soil with a distinct profile. It can also be defined as the zone below the plowed soil in which roots normally grow. In this publication it refers to the soil material between 20 cm and 100 cm depth.
texture	The relative proportions of sand, silt and clay (the soil separates). It is described in terms such as sand (S), loamy sand (LS), sandy loam (SL), loam (L), silt loam (SiL), clay loam (CL), silty clay loam (SiCL) and clay (C). See Figure 3 at end of this section.
till	Unstratified glacial drift deposited directly by the ice and consisting of clay, sand, gravel, and boulders intermingled in any proportion.
volume	Amount of wood in a tree, stand of trees or other specified area. Usually measured in terms of cubic metres/area.
Von Post humification scale	A manual method for estimating degree of decomposition of peat materials. It is a 10 point scale with assessment based on colour of drained water and structure of hand squeezed material.
water table	The upper surface of groundwater or that level below which the soil is saturated with water.
Wetland:	Land that has the water table at, near or above the land surface or which is saturated for a long enough period to promote wetland or aquatic processes as indicated by hydric soils, hydrophytic vegetation and various kinds of biological activity that are adapted to the wet environment (Tarnocai et al., 1988).
Woodlot	A tract of land, on a farm, ranch or other private property, set aside primarily for the growing, management, and harvest of trees for sale as unprocessed logs and potentially a variety of other ancillary products.

APPENDIX 2 STANDARD WOODLOT CONVERSION FACTORS

Solid Measure to Solid Measure
1 m^3 = 35.3 ft^3 or .353 cunits
1 cunit = 1— ft^3 or 2.83 m^3
1 ft^3 = 0.0283 m^3

Stacked Measure to Stacked Measure
1 m^3 (stacked) = 0.275 cord
1 cord = 128 ft^3 (stacked) = 3.62 m^3 (stacked)

Stacked Measure to Solid Measure
Conifer: 1 m^3 (stacked) = 0.664 m^3 (solid) 1 cord = 85 ft^3 = 2.4 m^3 (solid)
Deciduous: 1 m^3 (stacked) = 0.557 m^3 (solid) 1 cord = 71 ft^3 = 2.0 m^3 (solid)

Roundwood to Weight
1 m^3 (spruce, pine, fir) roughly equals 0.825 tonne [may vary by ecoregion]
1 m^3 (aspen, balsam poplar) roughly equals 0.975 tonne [may vary by ecoregion]

APPENDIX 3 GENERAL FIELD APPLICATION OF THE ASSESSMENT PROCEDURE

In order to ensure that the productivity ratings and assessment procedures are appropriate and meet expectations, it is felt that a brief description of field protocols might be useful.

To perform an assessment it is assumed that a woodlot management plan is in place, and that the plans have been reviewed to ensure that they are complete and that logical and practical "management units" (partitions) have been identified. The identification of these units is key to a good assessment.

1) Management Unit Definition
A management unit can be described as a practical sized land unit (> 5 ha) that requires a single management strategy. The land units would be characterized by a relatively uniform site of environmental conditions (vegetation, soil topography) or by a repeating landscape pattern that only requires a single type of management. For example, a floodplain would be separated from an adjacent upland, or a relatively flat fine textured lacustrine area from a hilly morainal upland, or a recent burn from an older mature forest.
Recognized features displayed on a map include:
Vegetation: general tree species, stand density and height
Topography: general slope steepness, shape, and patterns
Soils: material (texture) and drainage

2) Management Unit Descriptions
Each unit is characterized by selecting a site (or sites) that is representative of the unit. The site could be characterized as a relatively uniform landscape unit or it could include several sites to represent the range of characteristics in the case of a non-uniform unit.
Descriptions of vegetation, landforms and soils include:
Vegetation: tree species, understory type, merchantable volumes
Landform: typical slope steepness and length, stoniness, likelihood of flooding, dissection or other non-uniformity features.
Soils: texture, drainage, organic profile (including duff), depth to root restrictions, pH general classification.

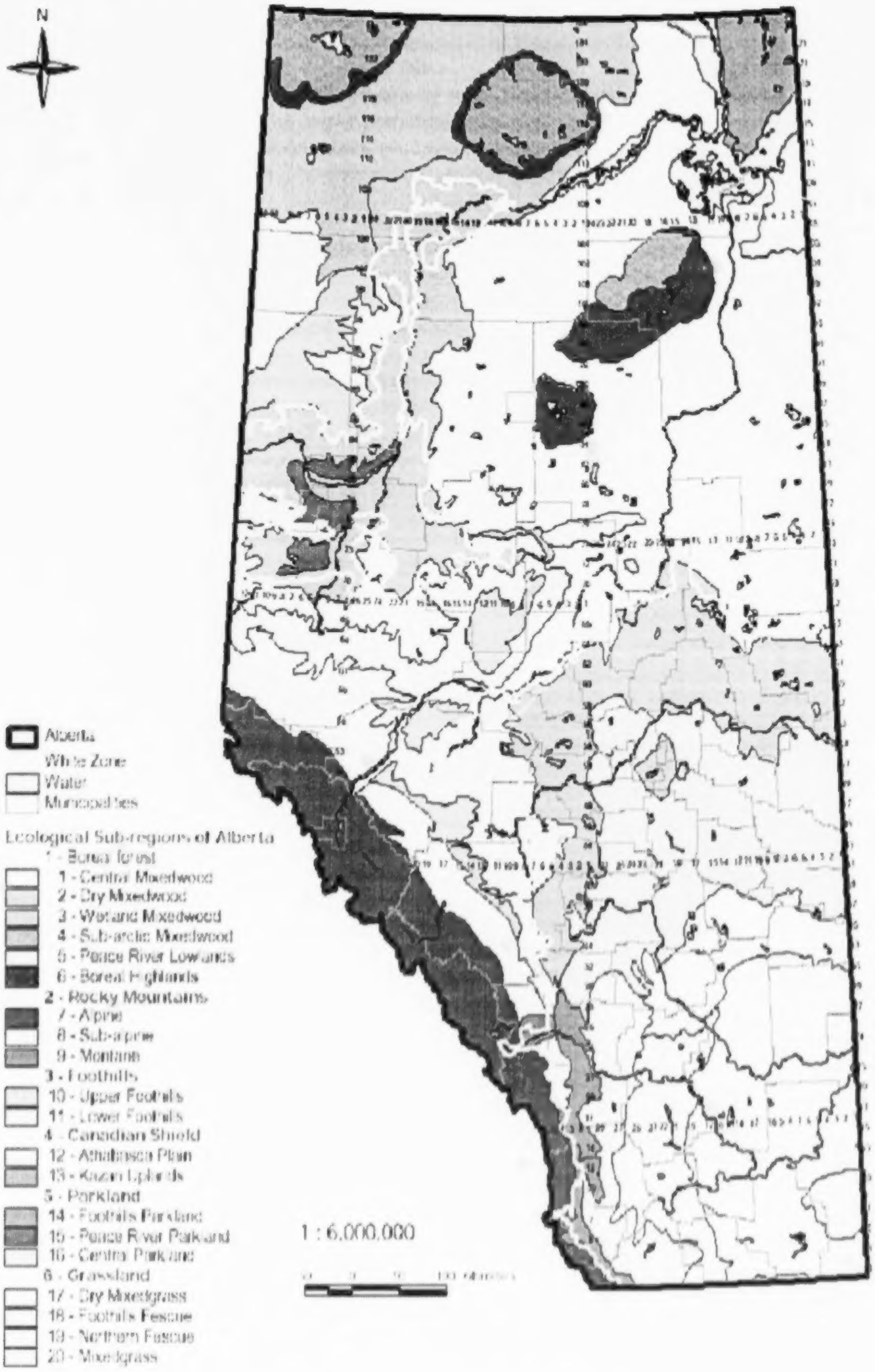
3) Application Issues
One of the most common questions is whether to use a single site or several sites to characterize the unit and whether to average the results or treat as proportions. The general approach should be to evaluate the amount of contrast in each of the vegetation landform and soil components. If there is little contrast in all three components then a single site is appropriate. If there are significant differences in any or all the components then more than one site should be evaluated for productivity assessment.

For example, a hummocky or rolling landform will typically have different drainage classes. It might be
(a) 40% moderately well drained (crests, upper slopes)
(b) 40% imperfectly to poorly drained (lower slopes)
(c) 20% poorly drained (shallow organic soils)

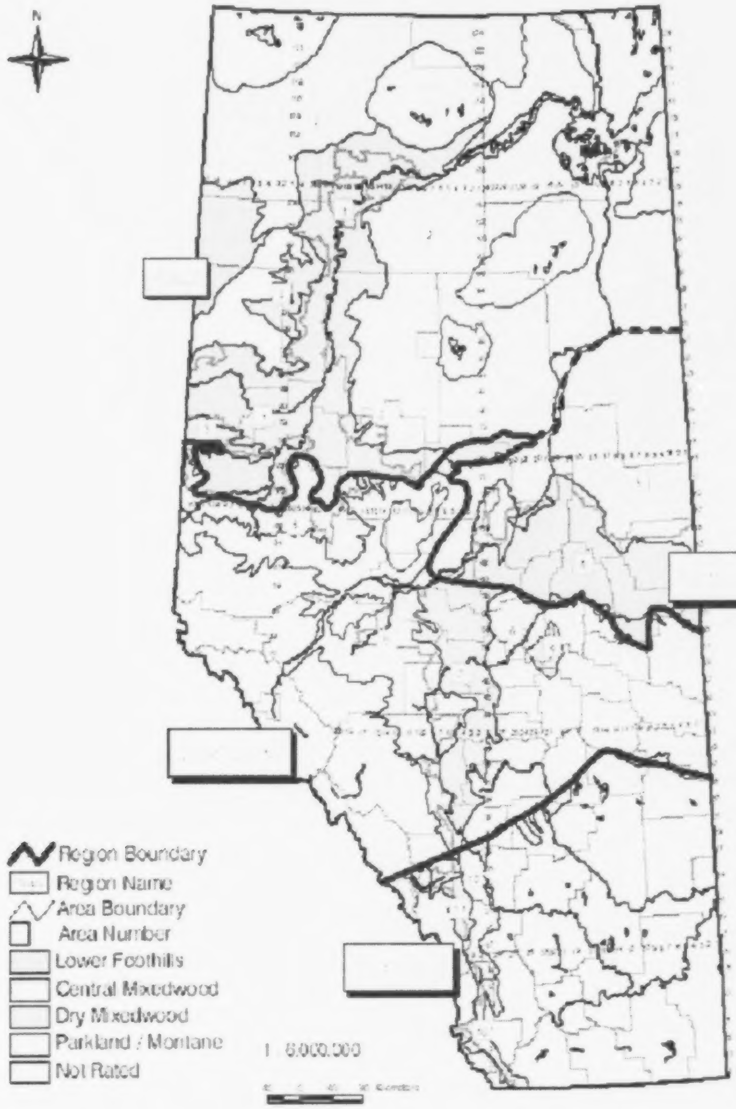
These should be evaluated separately. The results might be
(a) MAI of 2 m^3/ha/y (white spruce, aspen)
(b) MAI of 2.5 m^3/ha/y (white spruce, aspen)
(c) MAI of 0.9 m^3/ha/y (black spruce, tamarack)

It would be appropriate to average a) and b) but not c). With different species as well as probable harvesting strategies. The final assessment would be 80% @ 2.25 and 20% @ 0.9. This proportion would be carried forward into the assessment when values would be put on the proportion (acres) of each and then summed for a single total value. The wetland portion might be designated as "no economic value" or "non-productive" and valued on that basis.

Map 1 **Natural Regions and Subregions of Alberta**


N
Alberta
White Zone
Water
Municipalities
Ecological Sub-regions of Alberta
1 - Boreal forest
1 - Central Mixedwood
2 - Dry Mixedwood
3 - Wetland Mixedwood
4 - Sub-arctic Mixedwood
5 - Peace River Lowlands
6 - Boreal Highlands
2 - Rocky Mountains
7 - Alpine
8 - Sub-alpine
9 - Montane
3 - Foothills
10 - Upper Foothills
11 - Lower Foothills
4 - Canadian Shield
12 - Athabasca Plain
13 - Kazan Uplands
5 - Parkland
14 - Foothills Parkland
15 - Peace River Parkland
16 - Central Parkland
6 - Grassland
17 - Dry Mixedgrass
18 - Foothills Fescue
19 - Northern Fescue
20 - Mixedgrass
1 : 6,000,000

Map 2 **Woodlot Production Regions and Areas of Alberta (with Natural Region and Subregion Boundaries)**


N
Region Boundary
Region Name
Area Boundary
Area Number
Lower Foothills
Central Mixedwood
Dry Mixedwood
Parkland / Montane
Not Rated
1 : 6,000,000

Map 2. Woodlot Production Regions and Areas of Alberta
(with Natural Regions and Subregions Boundaries)

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